

KIC 009880467

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
009880467-01	OBS	0326.01	8.973474	135.138045	921.7	3.154	39.9	42.7	11.54	4751	37.69	6196.18
009880467-02	OBS	0326.02	108.545176	151.147010	836.4	10.012	11.7	12.9	11.54	4751	45.53	223.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009880467-01	OBS	PC	0.01	0	0	0	0	CENT_KIC_POS
009880467-02	OBS	PC	0.91	0	0	0	0	CENT_KIC_POS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

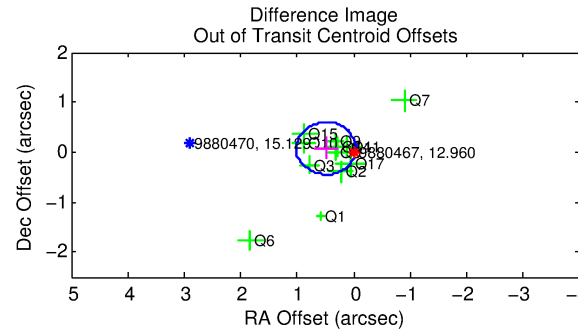
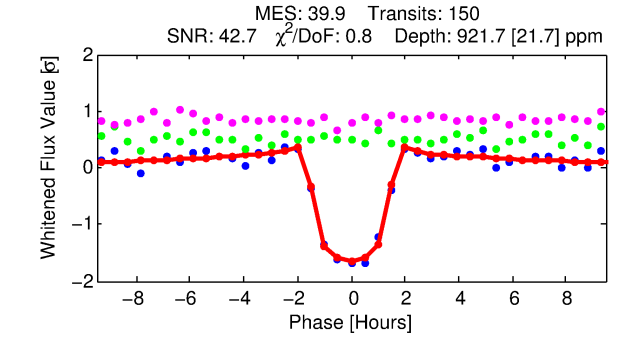
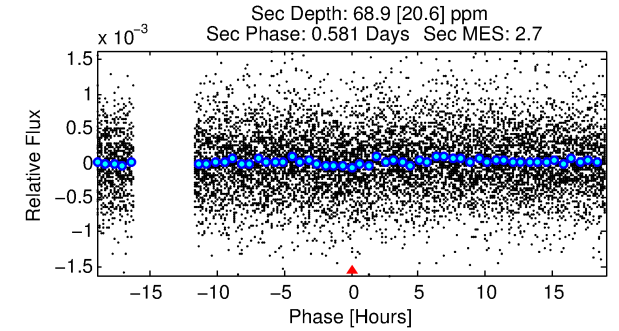
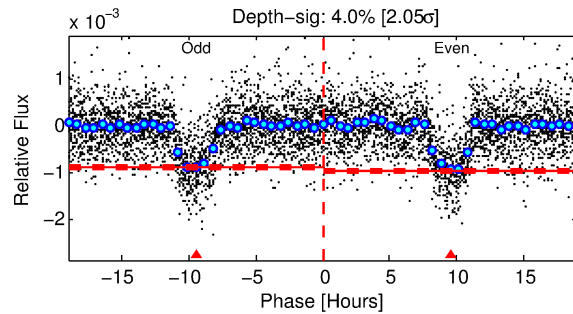
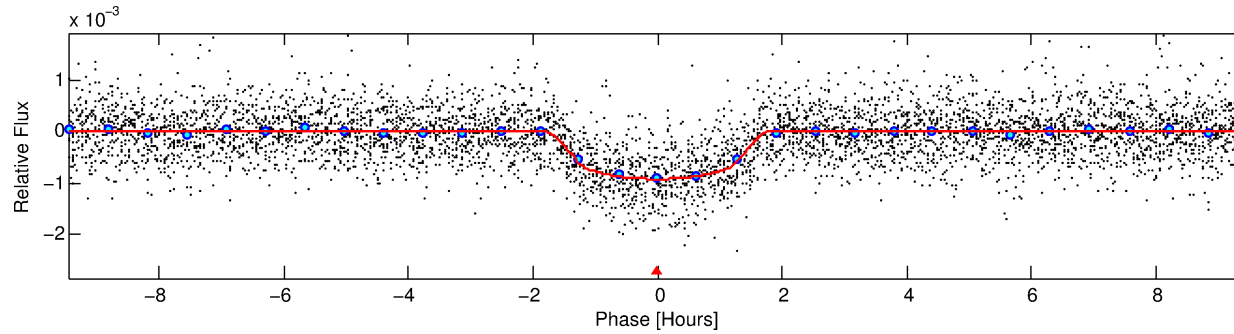
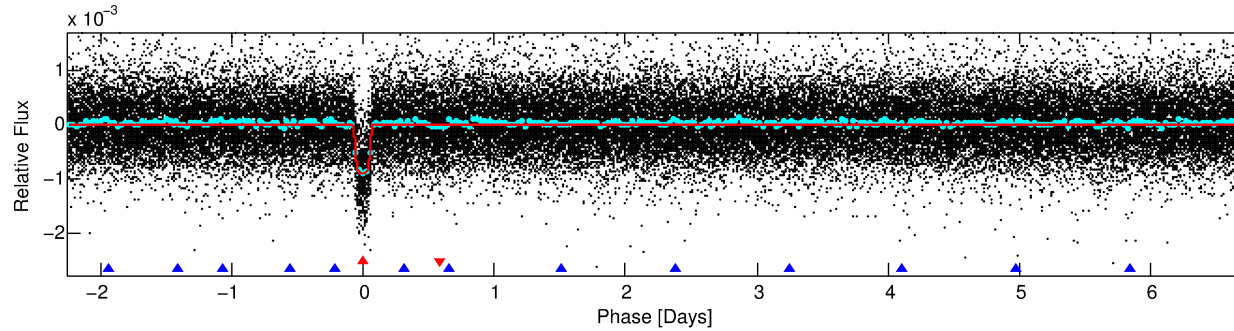
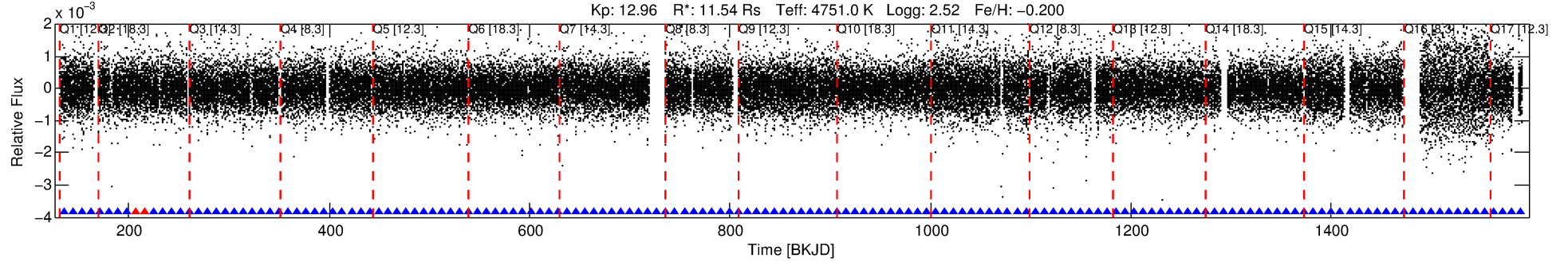
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009880467-01

No Significant Match Found

DV One-Page Summary

KIC: 9880467 Candidate: 1 of 2 Period: 8.973 d
KOI: K00326.01 Corr: 0.995



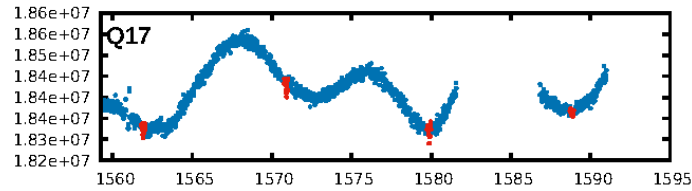
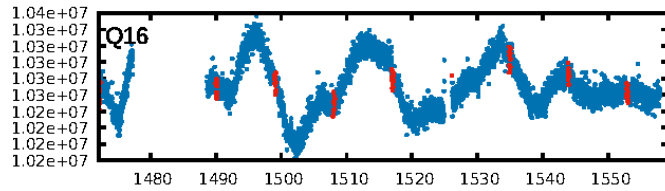
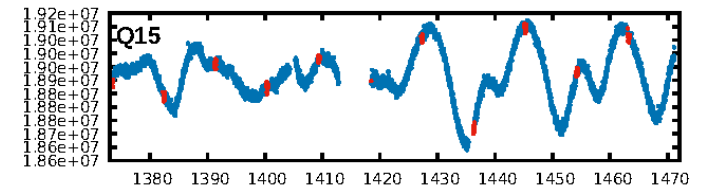
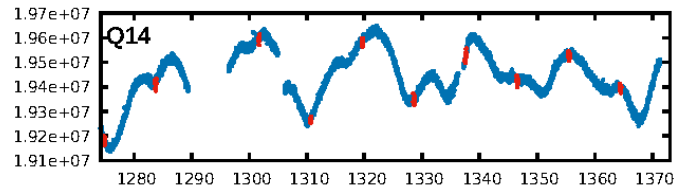
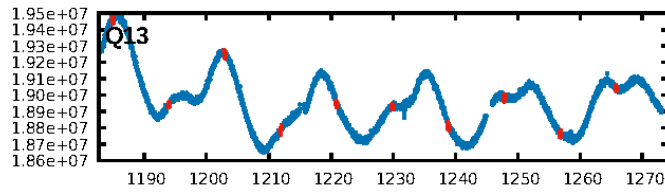
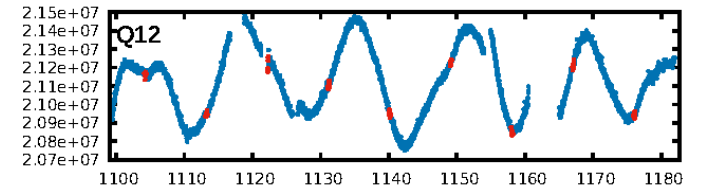
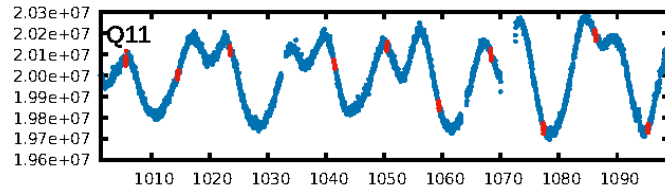
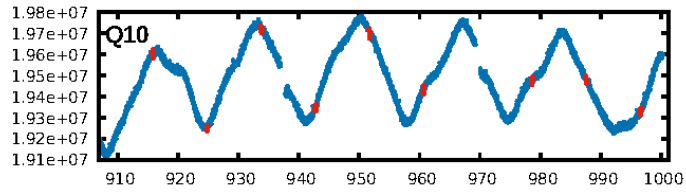
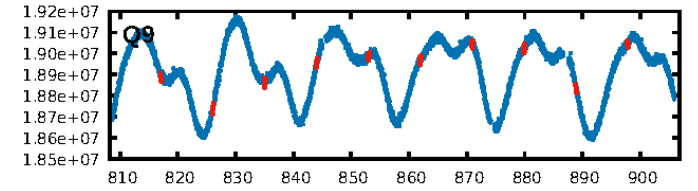
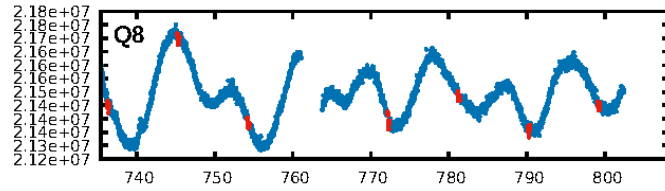
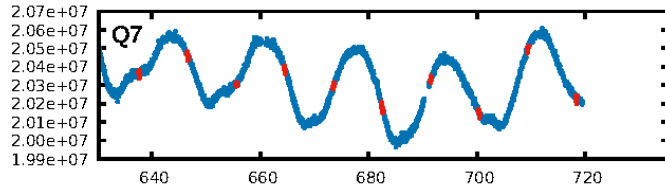
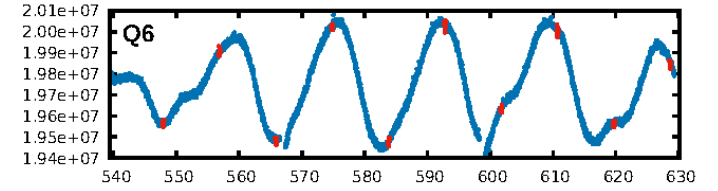
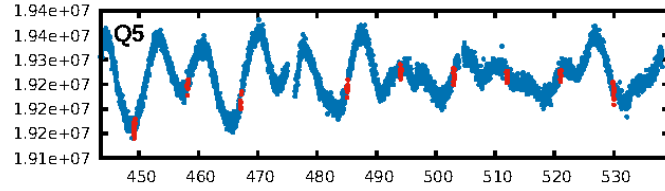
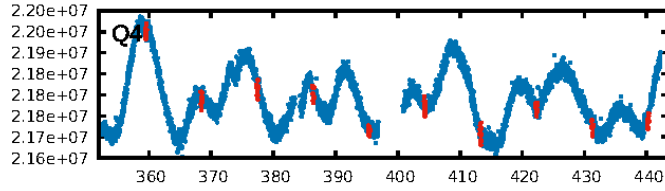
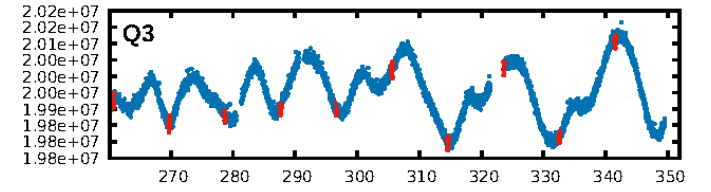
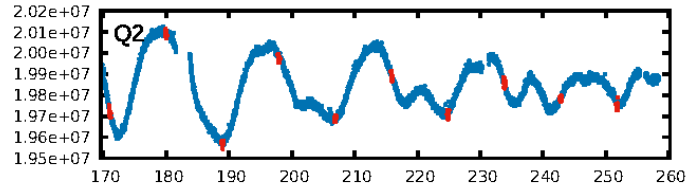
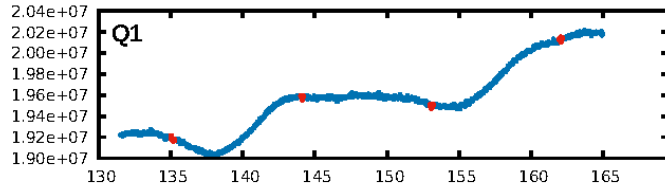
DV Fit Results:

Period = 8.97347 [0.00002] d
Epoch = 135.1380 [0.0014] BKJD
Rp/R* = 0.0299 [0.0077]
a/R* = 16.04 [13.75]
b = 0.72 [0.59]
Seff = 6196.18 [1786.45]
Teq = 2262 [163] K
Rp = 37.69 [13.36] Re
a = 0.0990 [0.0196] AU
Ag = 0.26 [0.17] [-4.29 σ]
Teffp = 2502 [375] K [0.59 σ]

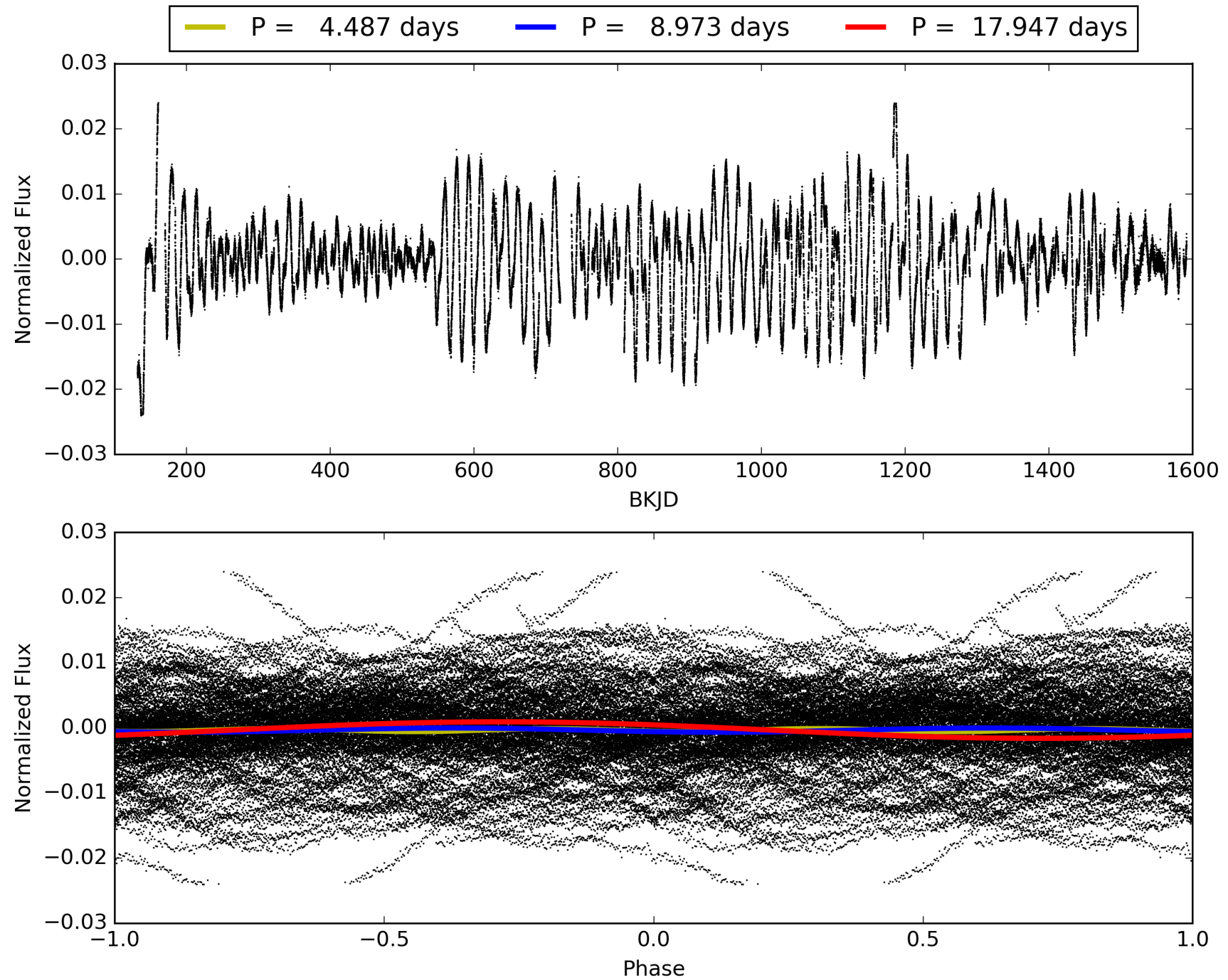
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [227.66 σ]
ModelChiSquare2-sig: 97.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [140/142]
GhostDiagnostic-chr: 5.595
Centroid-sig: 0.0%
Centroid-so: 1.744 arcsec [5.00 σ]
OotOffset-rm: 0.498 arcsec [2.85 σ]
KicOffset-rm: 2.983 arcsec [1.94 σ]
OotOffset-st: 4/4/0/4 [12]
KicOffset-st: 4/4/1/4 [13]
DiffImageQuality-fgm: 0.85 [11/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009880467-01, PDC Light Curves

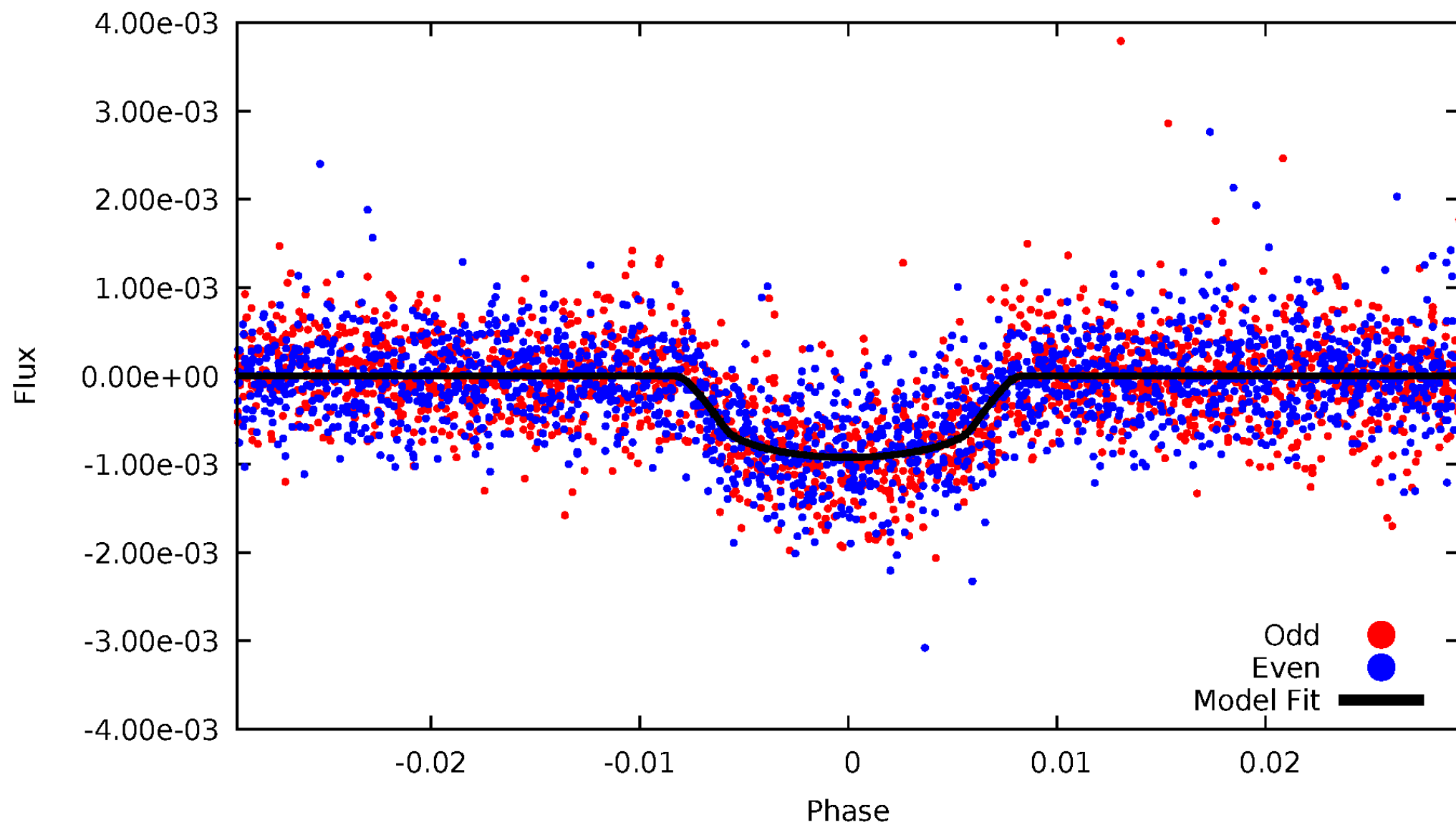


TCE 009880467-01



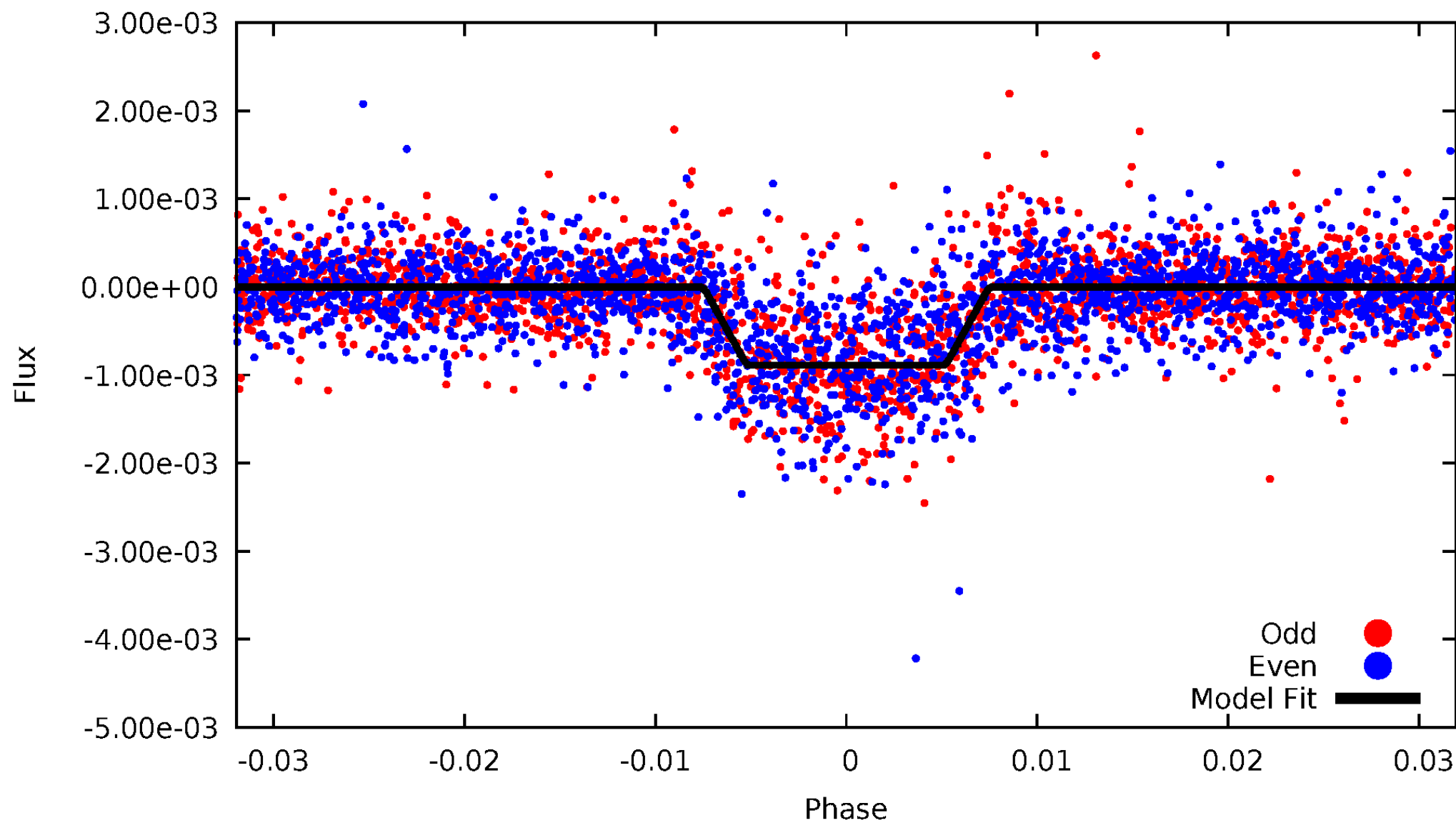
DV Odd/Even

TCE 009880467-01



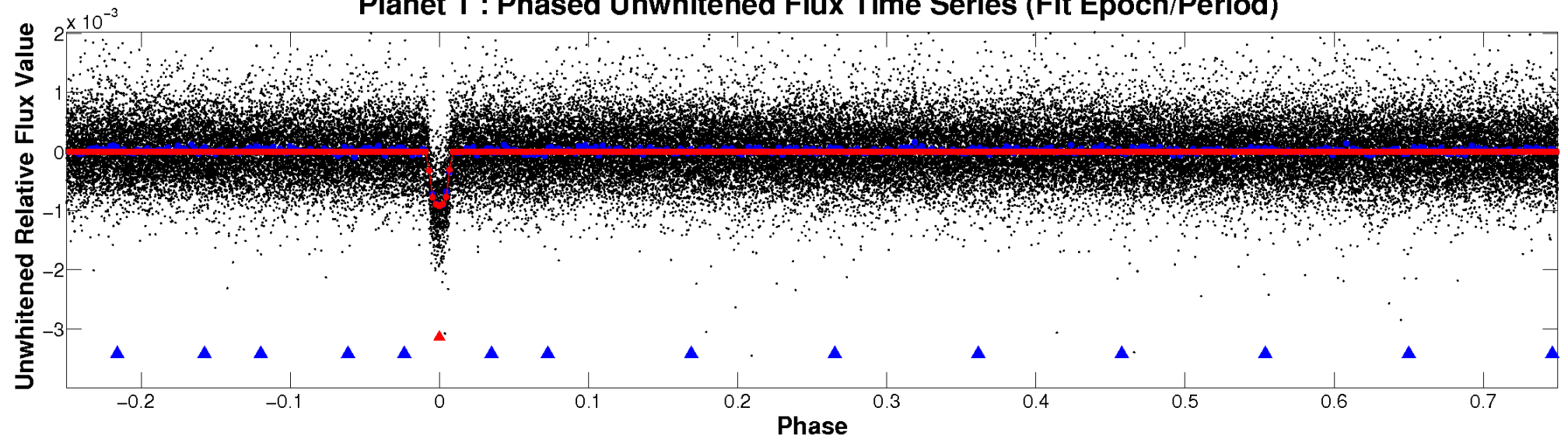
ALT Odd/Even

TCE 009880467-01

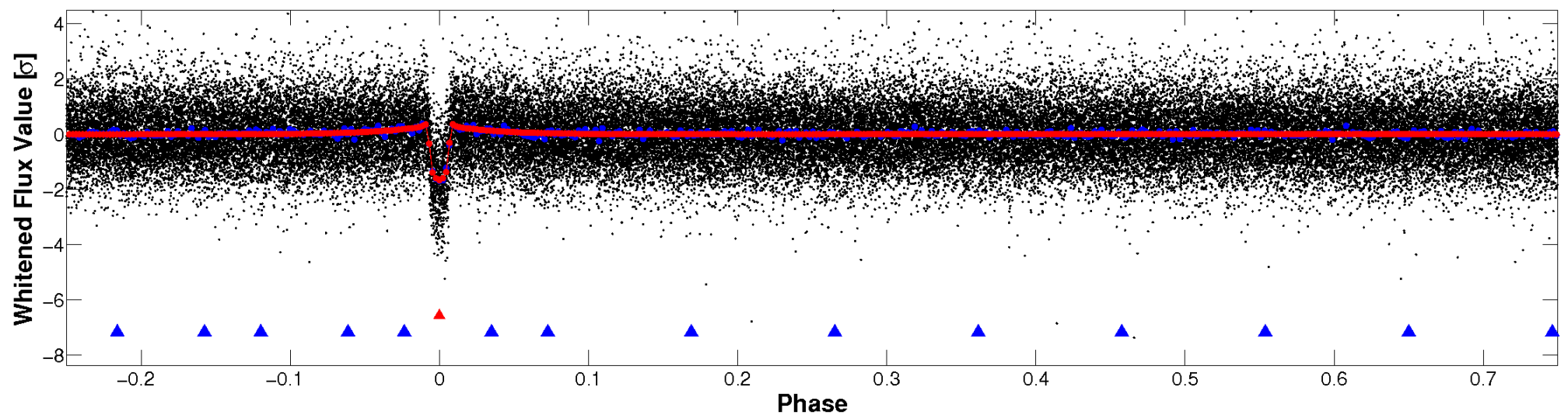


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

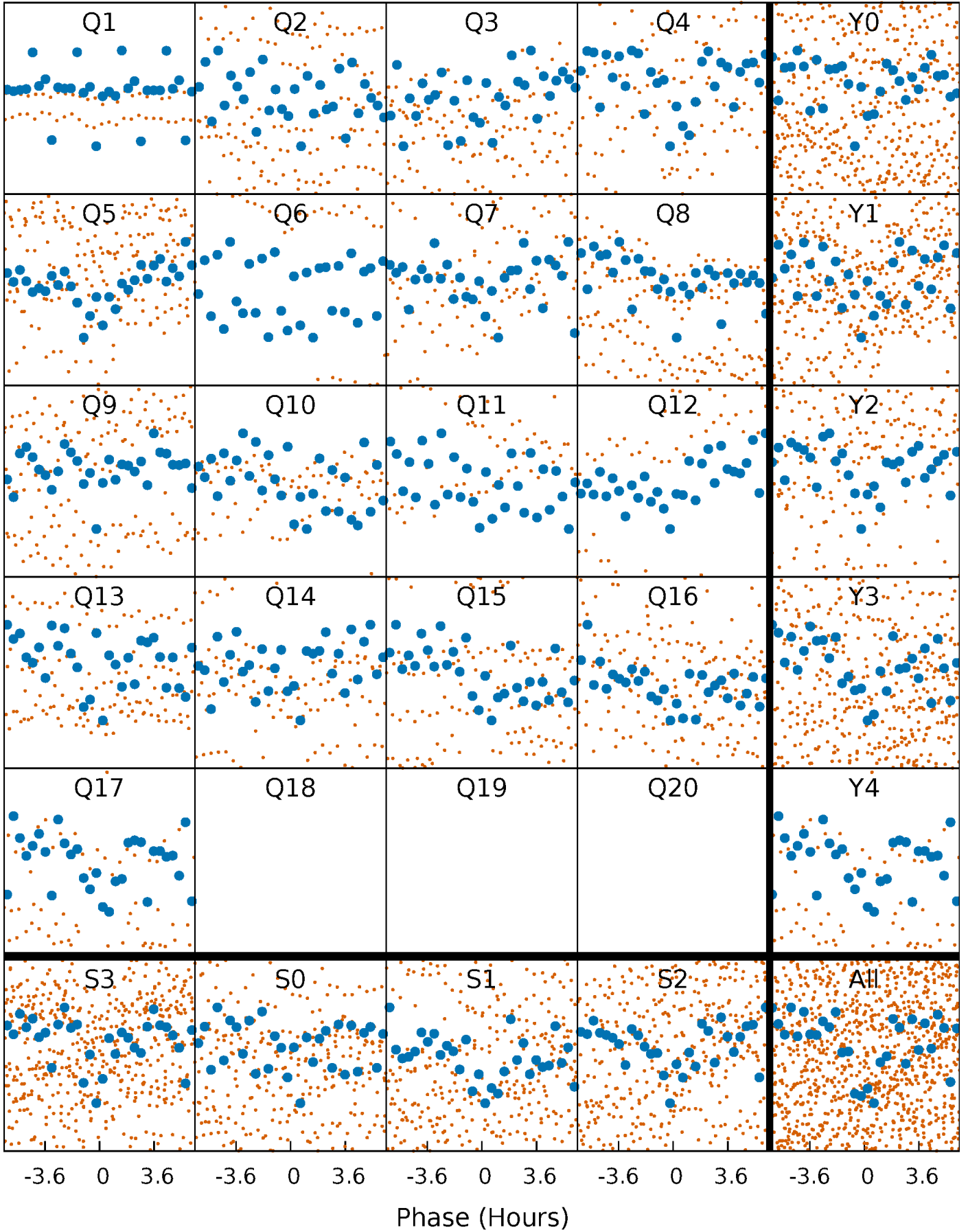


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



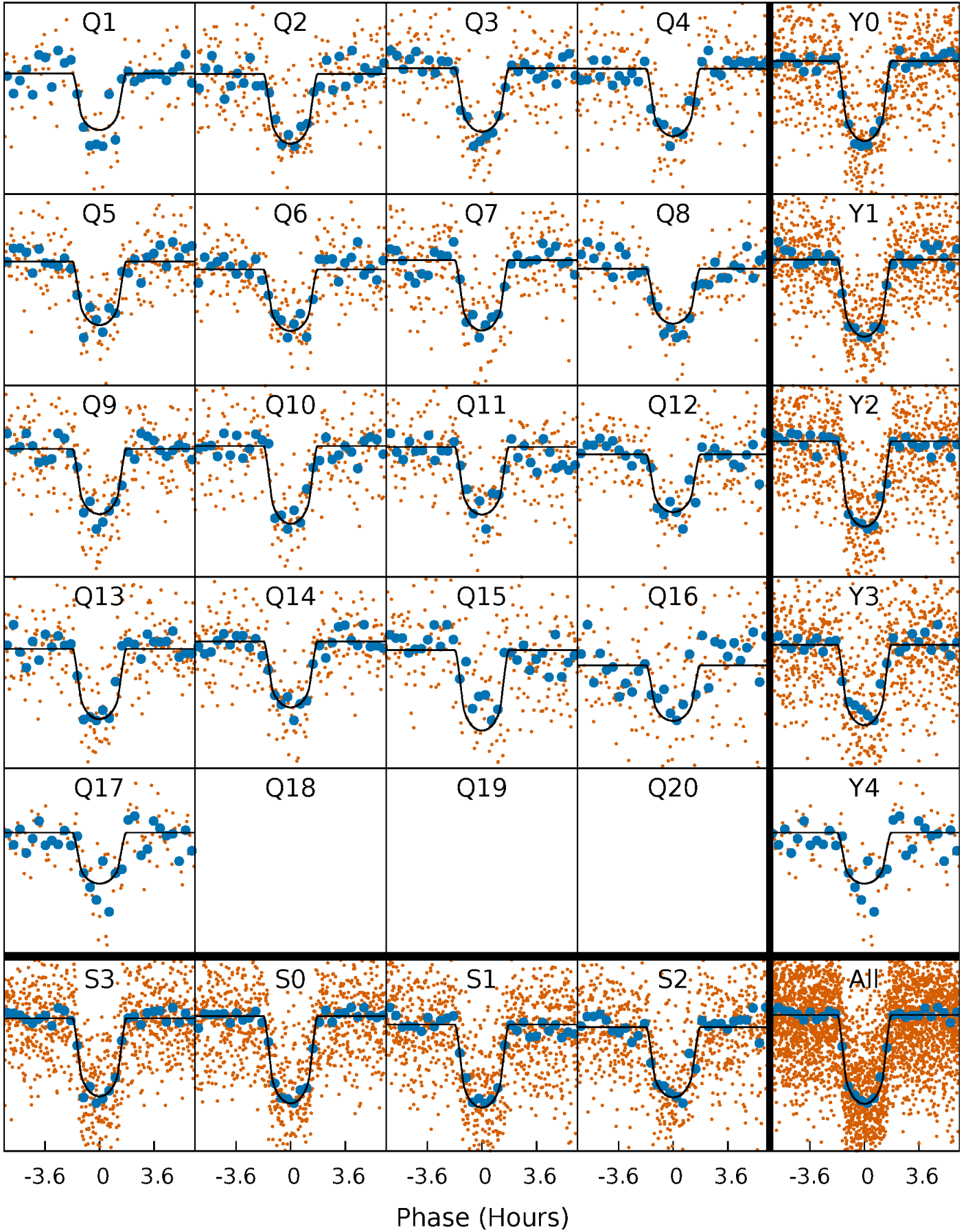
PDC Quarter-Phased Transit Curves

TCE 009880467-01 P= 8.973474 Days $T_0=135.138045$ (BKJD)



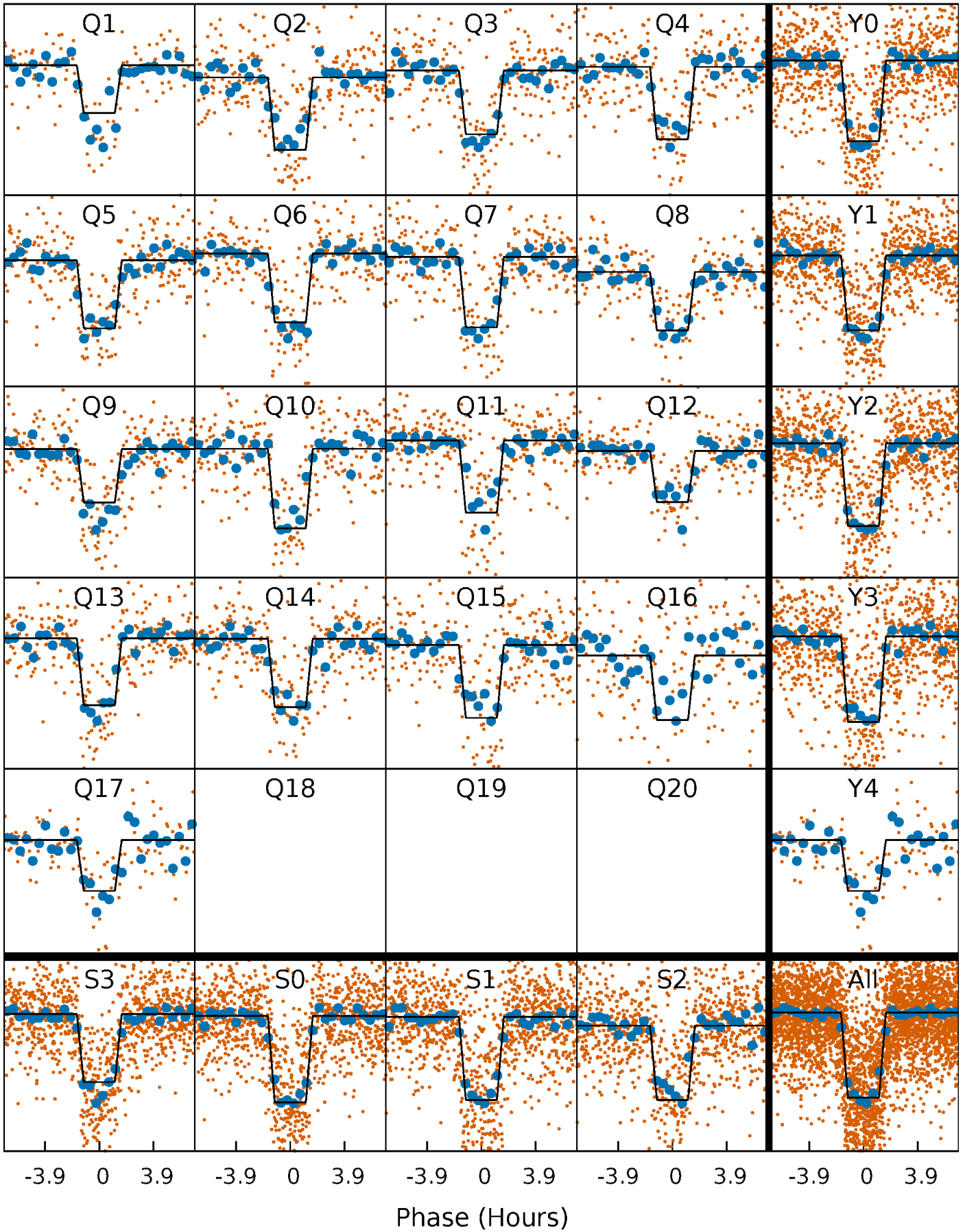
DV Quarter-Phased Transit Curves

TCE 009880467-01 P= 8.973474 Days $T_0=135.138045$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

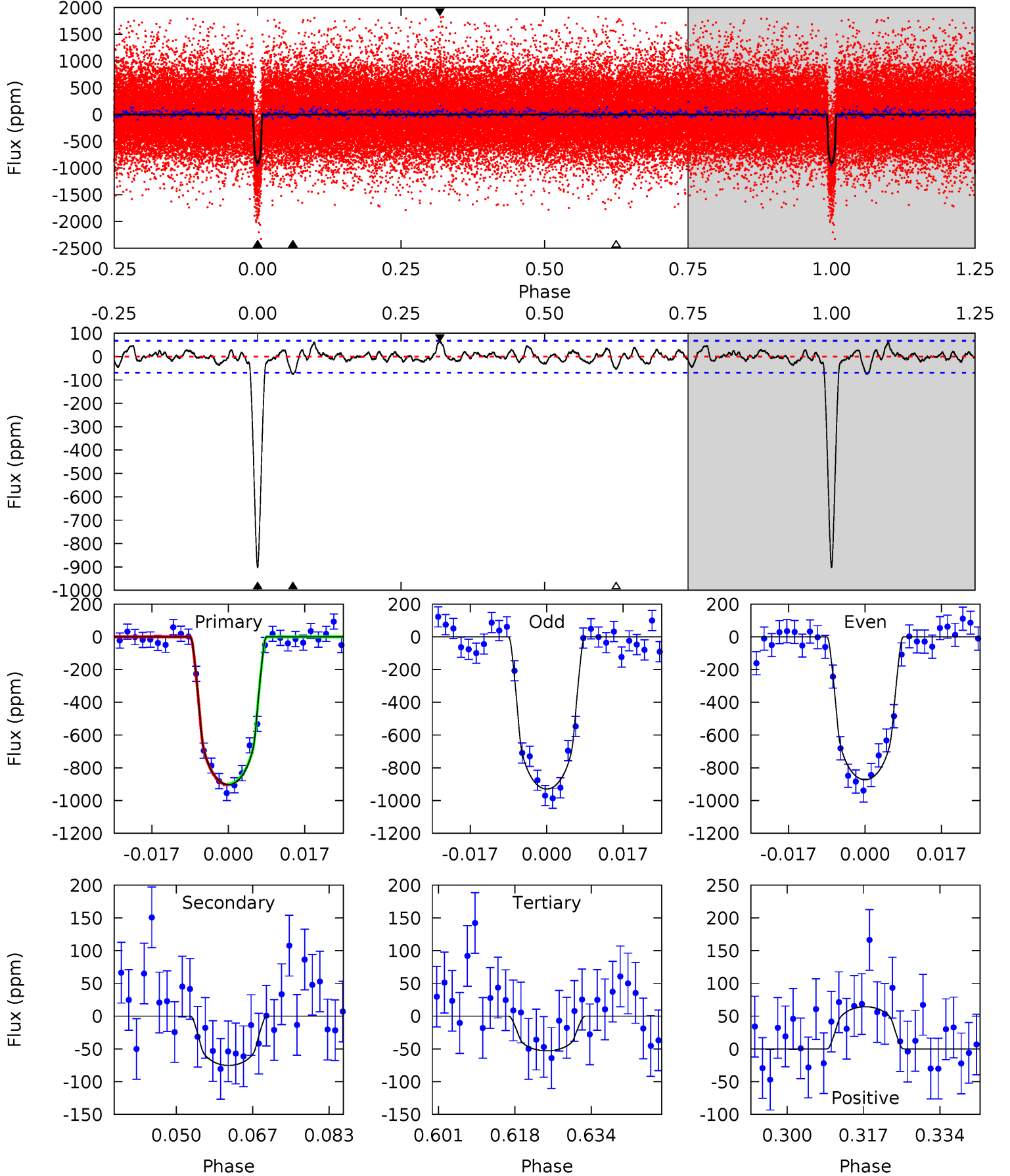
TCE 009880467-01 P= 8.973464 Days $T_0=135.139422$ (BKJD)



DV Model-Shift Uniqueness Test

009880467-01, P = 8.973474 Days, E = 126.164571 Days

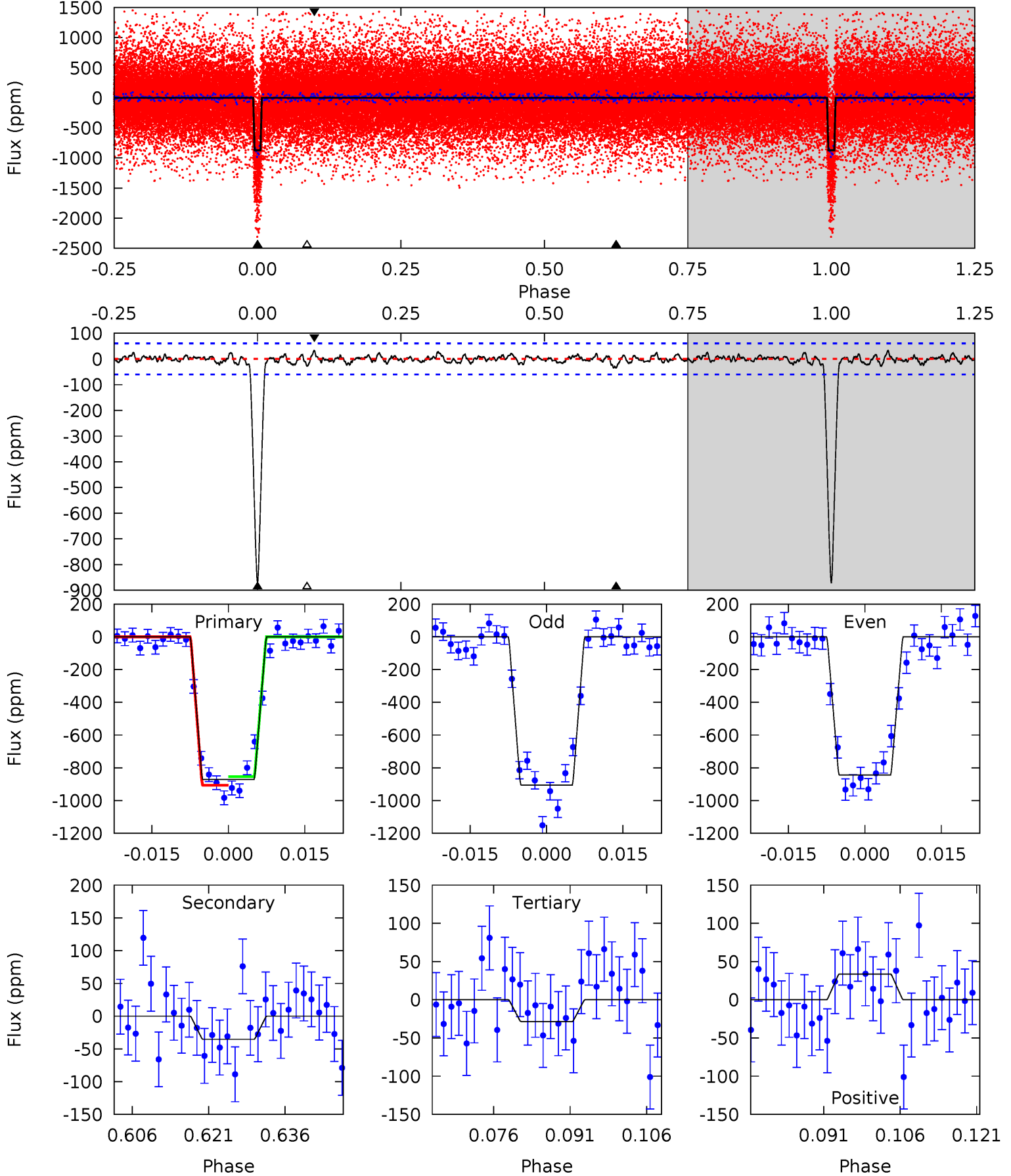
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
65.1	5.43	3.82	4.64	4.93	2.39	1.33	61.3	60.5	1.61	0.79	2.05	0.99	0.07	0.20



Alt Model-Shift Uniqueness Test

009880467-01, P = 8.973464 Days, E = 126.165958 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
71.6	2.90	2.34	2.77	4.95	2.43	0.84	69.3	68.8	0.56	0.13	2.48	0.99	0.04	2.20



Stellar Parameters For KIC 009880467

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4751^{+64}_{-85}	$2.520^{+0.148}_{-0.121}$	$-0.200^{+0.150}_{-0.150}$	$11.536^{+1.874}_{-2.811}$	$1.606^{+0.170}_{-0.510}$	$0.001^{+0.001}_{-0.000}$
	+1%/-2%	+6%/-5%	+75%/-75%	+16%/-24%	+11%/-32%	+79%/-32%
Source	SPE18	SPE18	SPE18	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009880467-01 / KOI 0326.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-75 ± 14	$37.04^{+11.34}_{-10.27}$	3164^{+147}_{-168}	-2114^{+5110}_{-708}	$0.287^{+0.266}_{-0.119}$
Alt.	-35 ± 12	$37.19^{+11.39}_{-10.38}$	3161^{+158}_{-172}	-2870^{+587}_{-207}	$0.133^{+0.138}_{-0.065}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

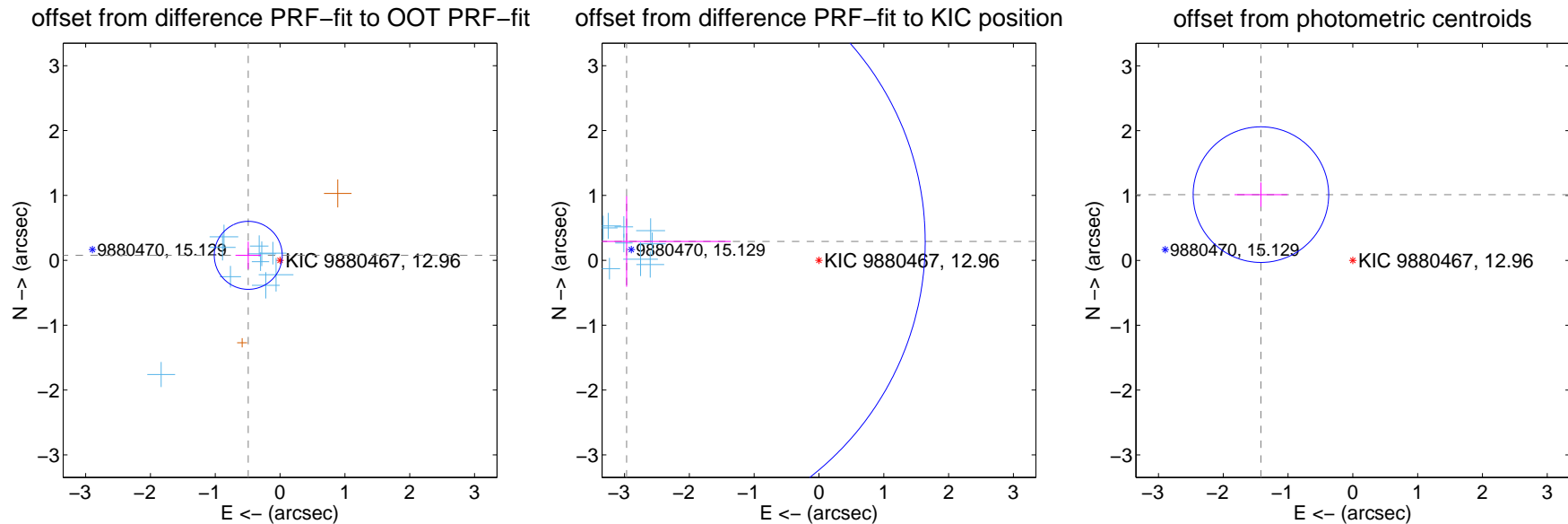
DV Centroid Data

Supplemental centroid analysis for 009880467-01. Kepler magnitude: 12.96. Transit SNR 42.74

There are 11 quarters with good PRF difference image offsets

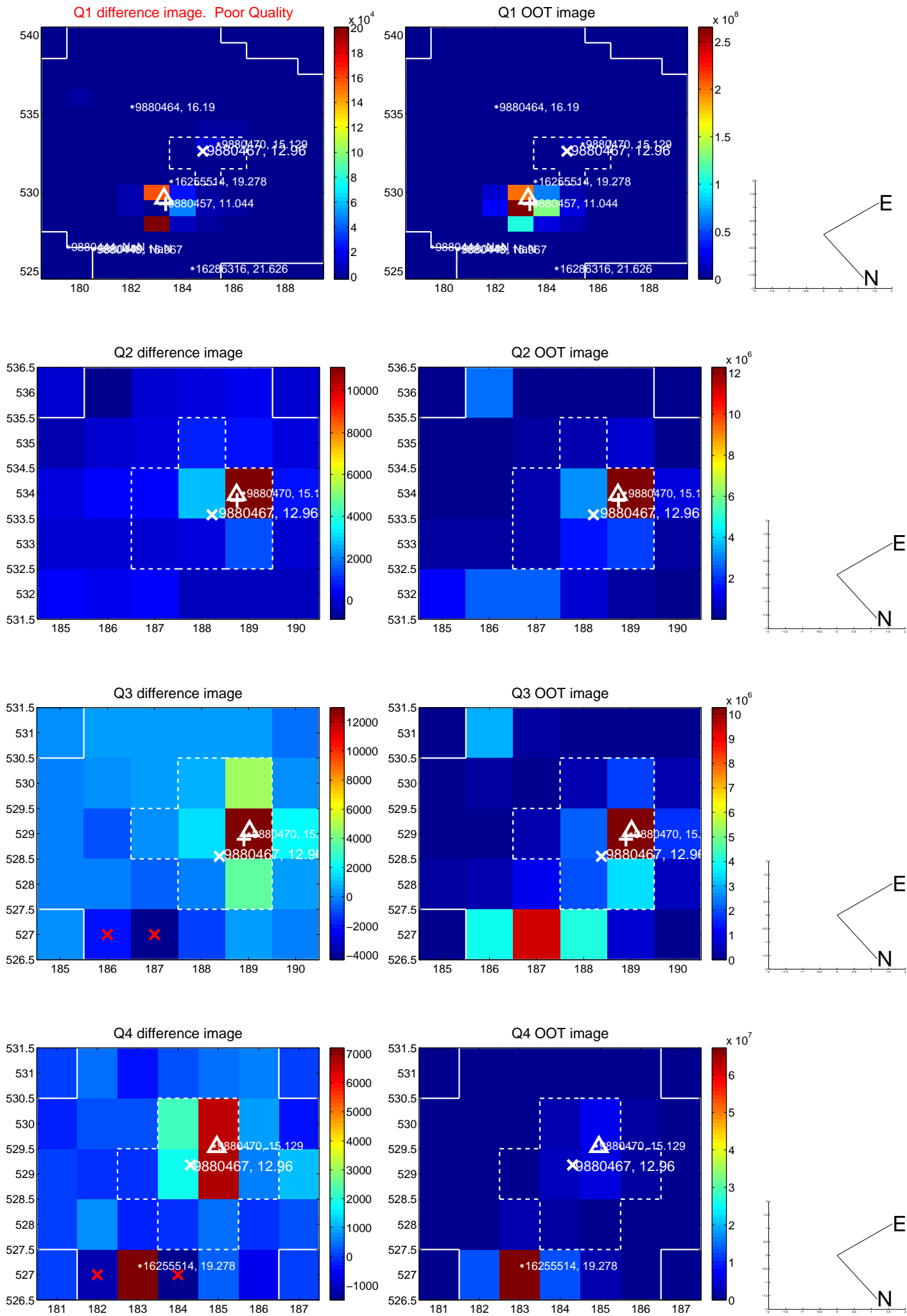
The OOT PRF centroid is offset from the target star catalog position by about 2.70 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.498 ± 0.175	2.85	0.492 ± 0.197	0.076 ± 0.211
PRF-fit source offset from KIC position	2.983 ± 1.536	1.94	2.968 ± 1.609	0.291 ± 0.698
photometric centroid source offset	1.74 ± 0.35	5.00	1.42 ± 0.41	1.01 ± 0.19

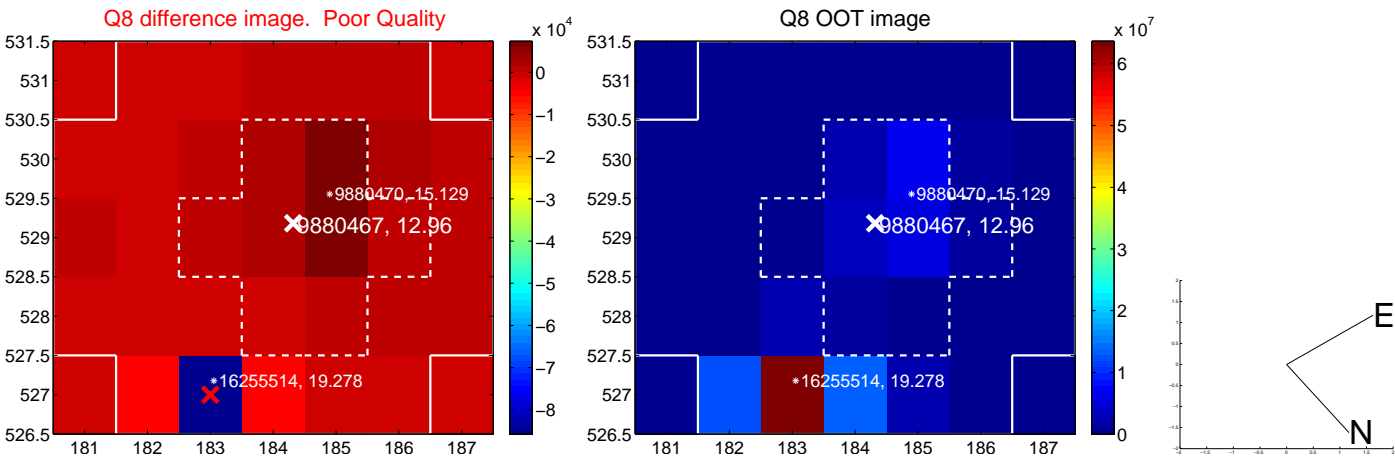
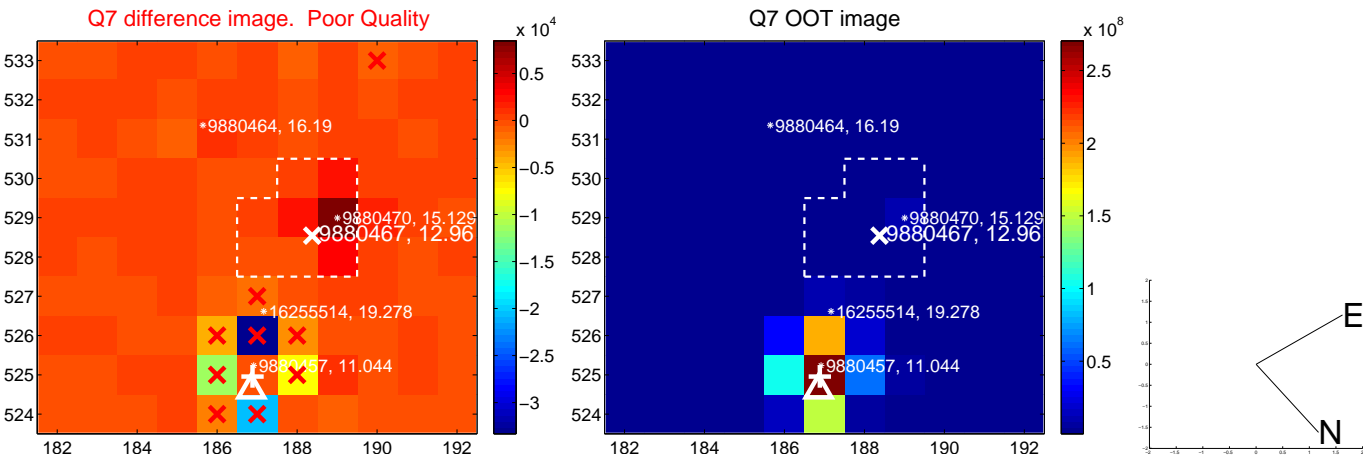
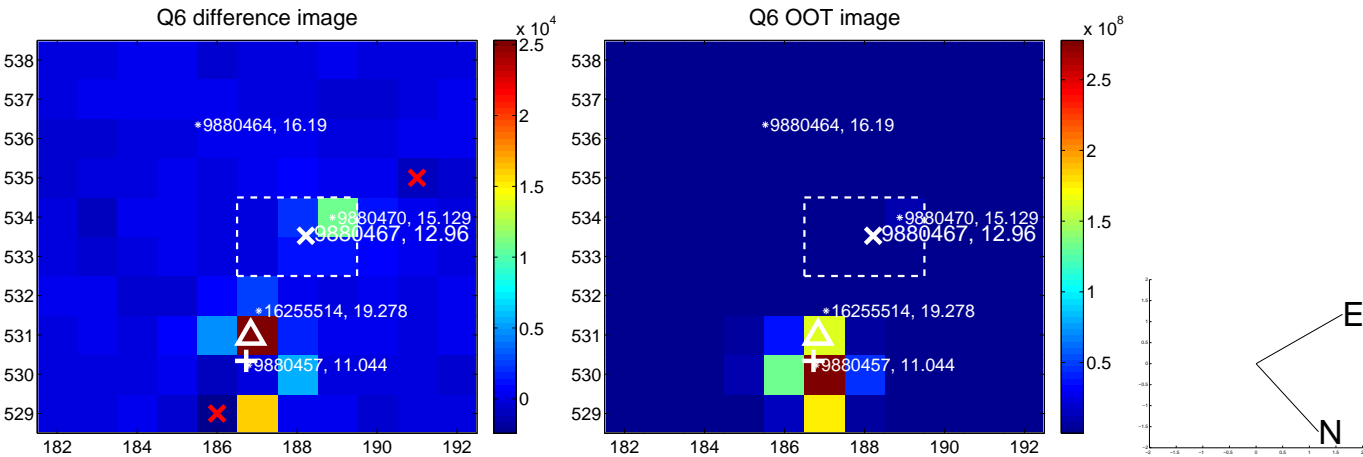
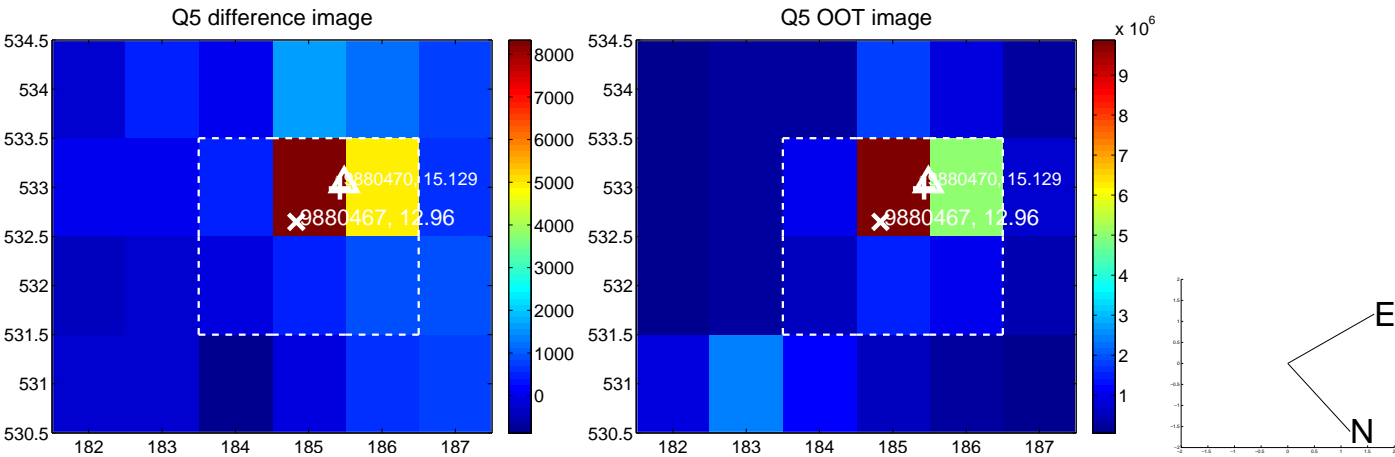


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

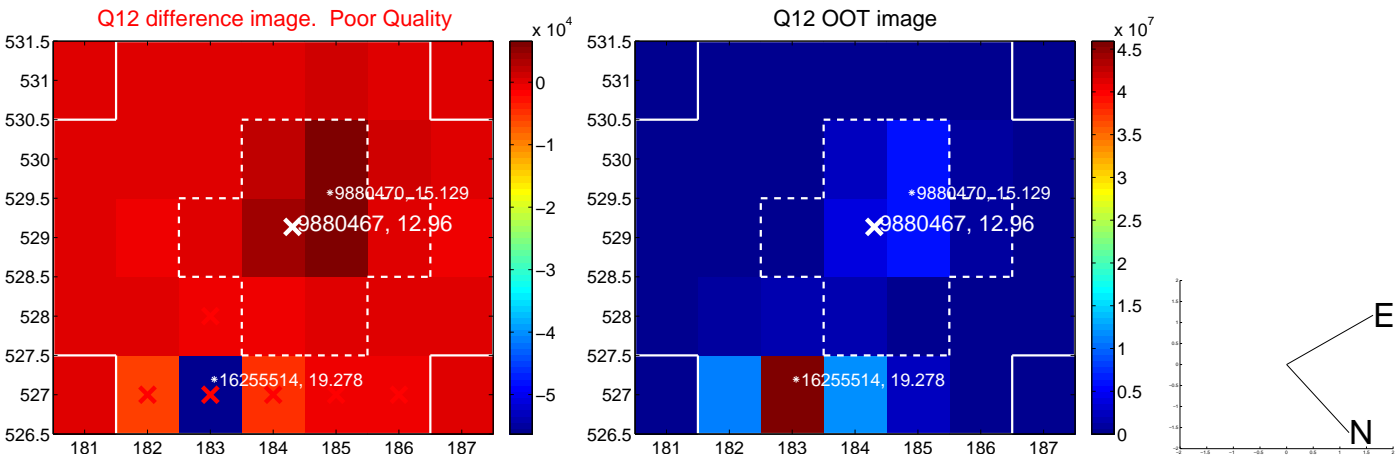
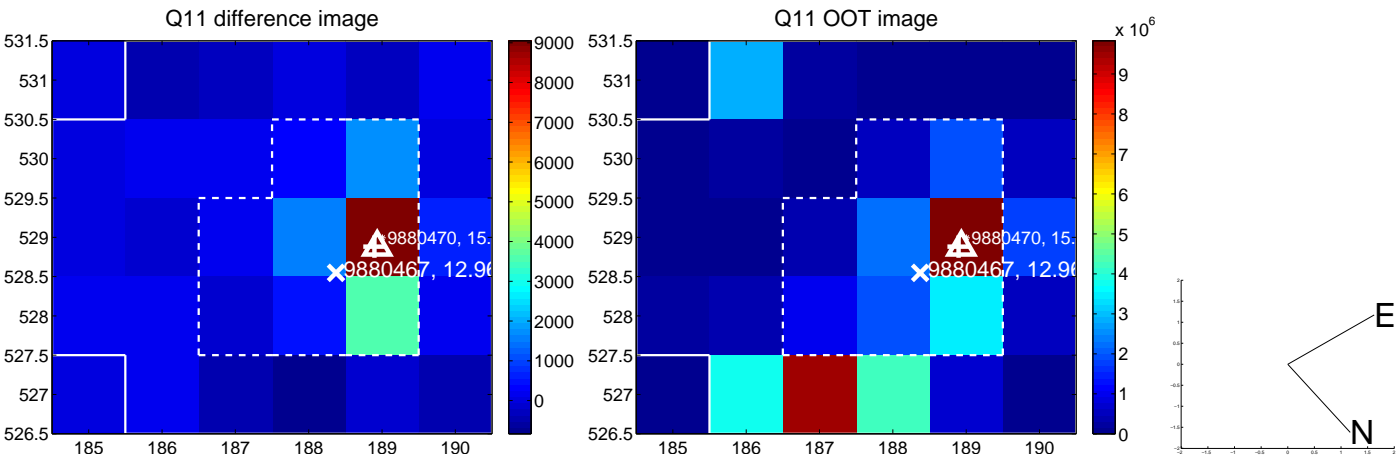
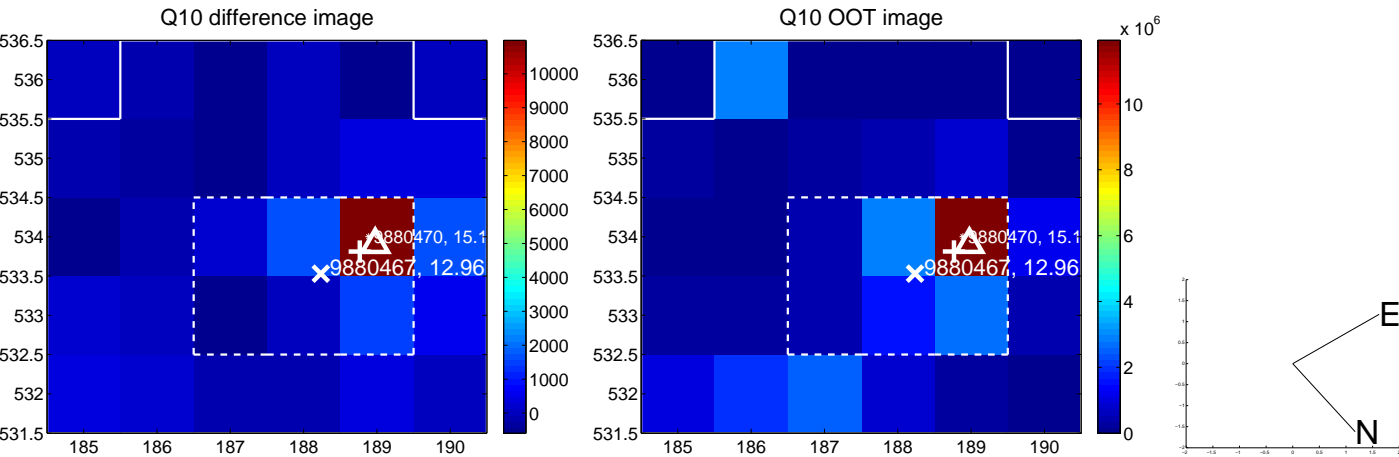
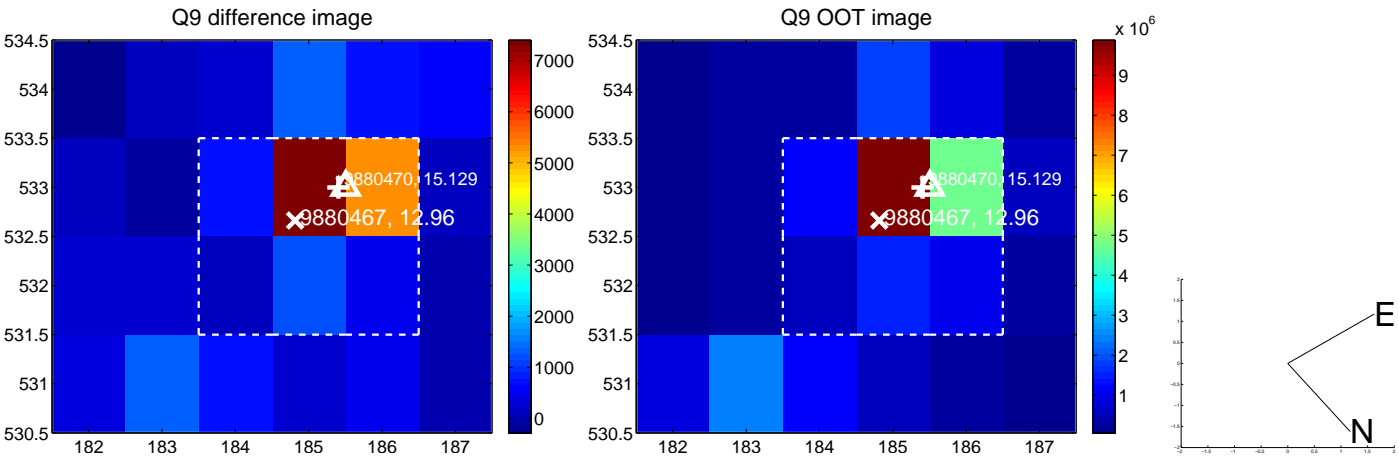
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



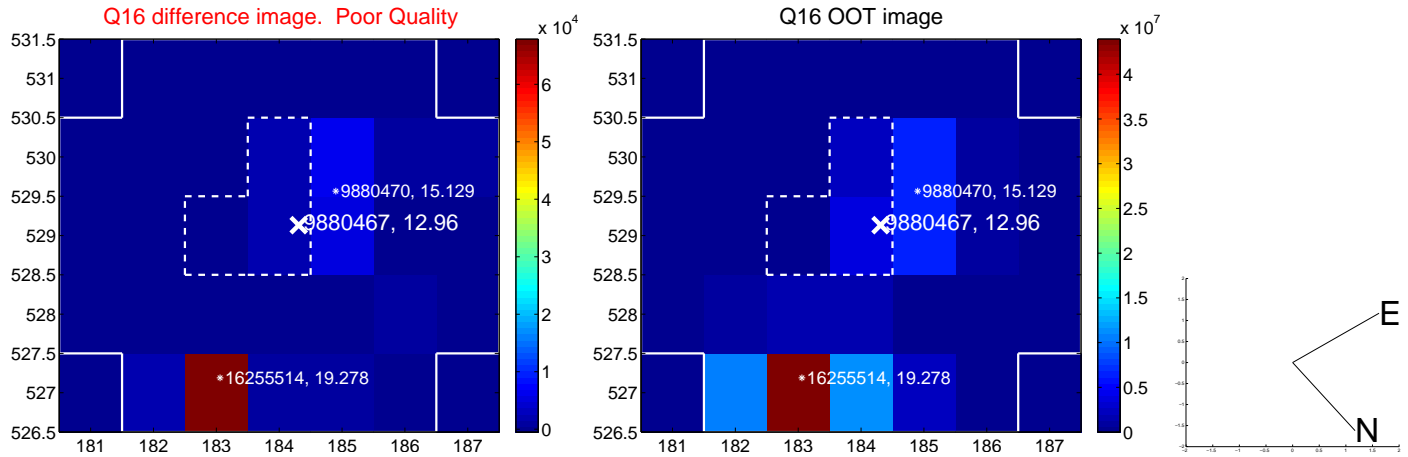
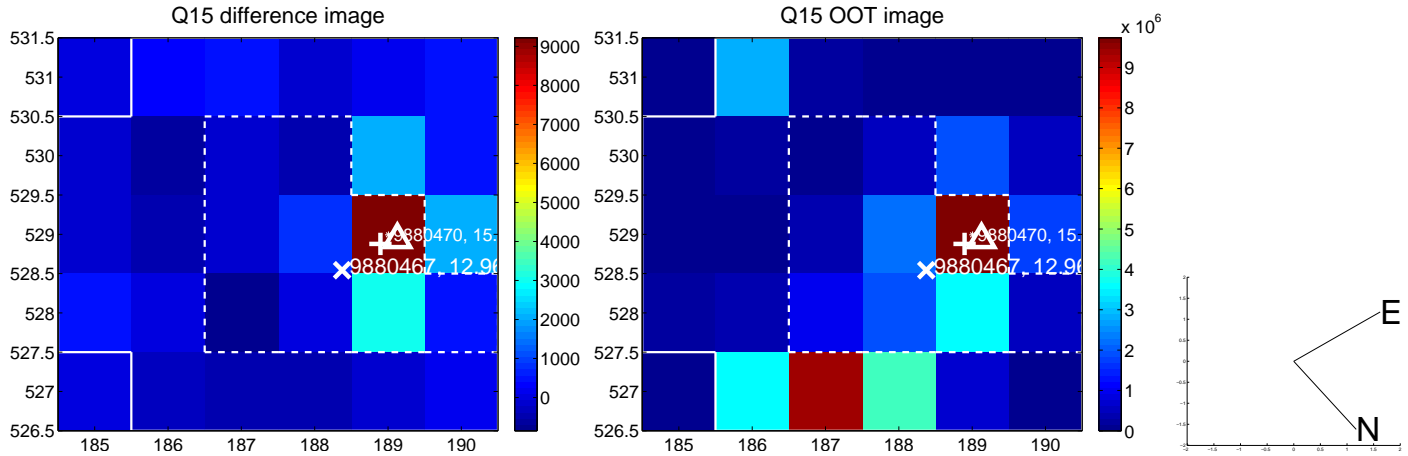
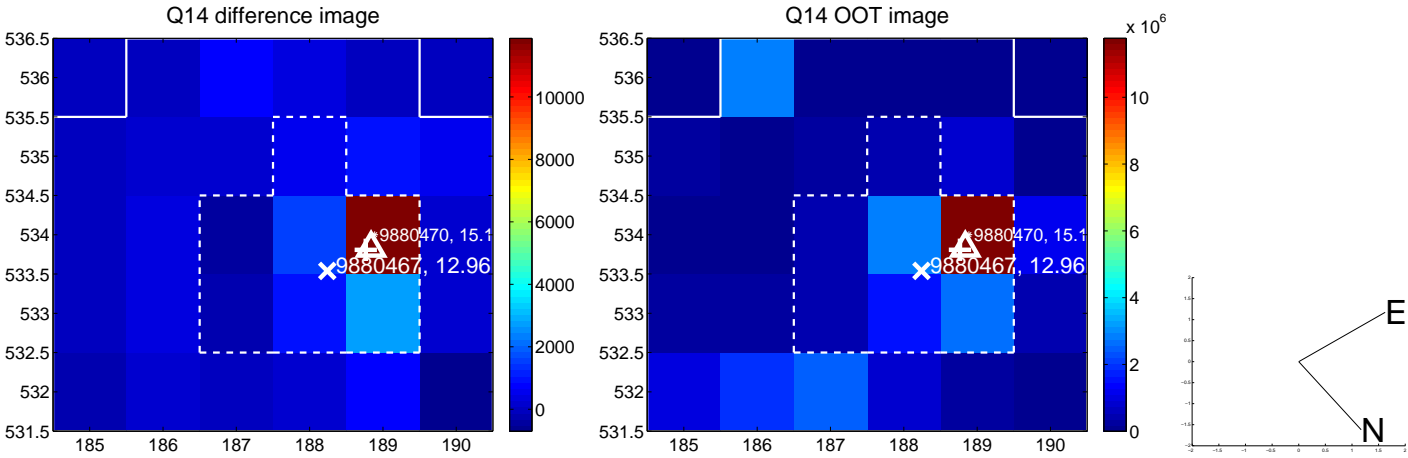
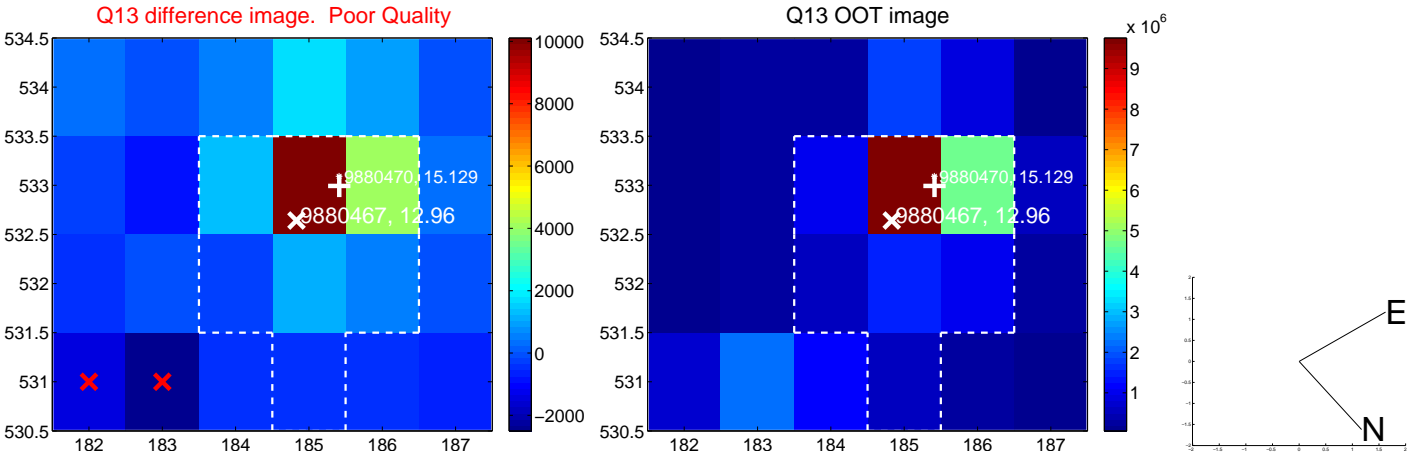
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

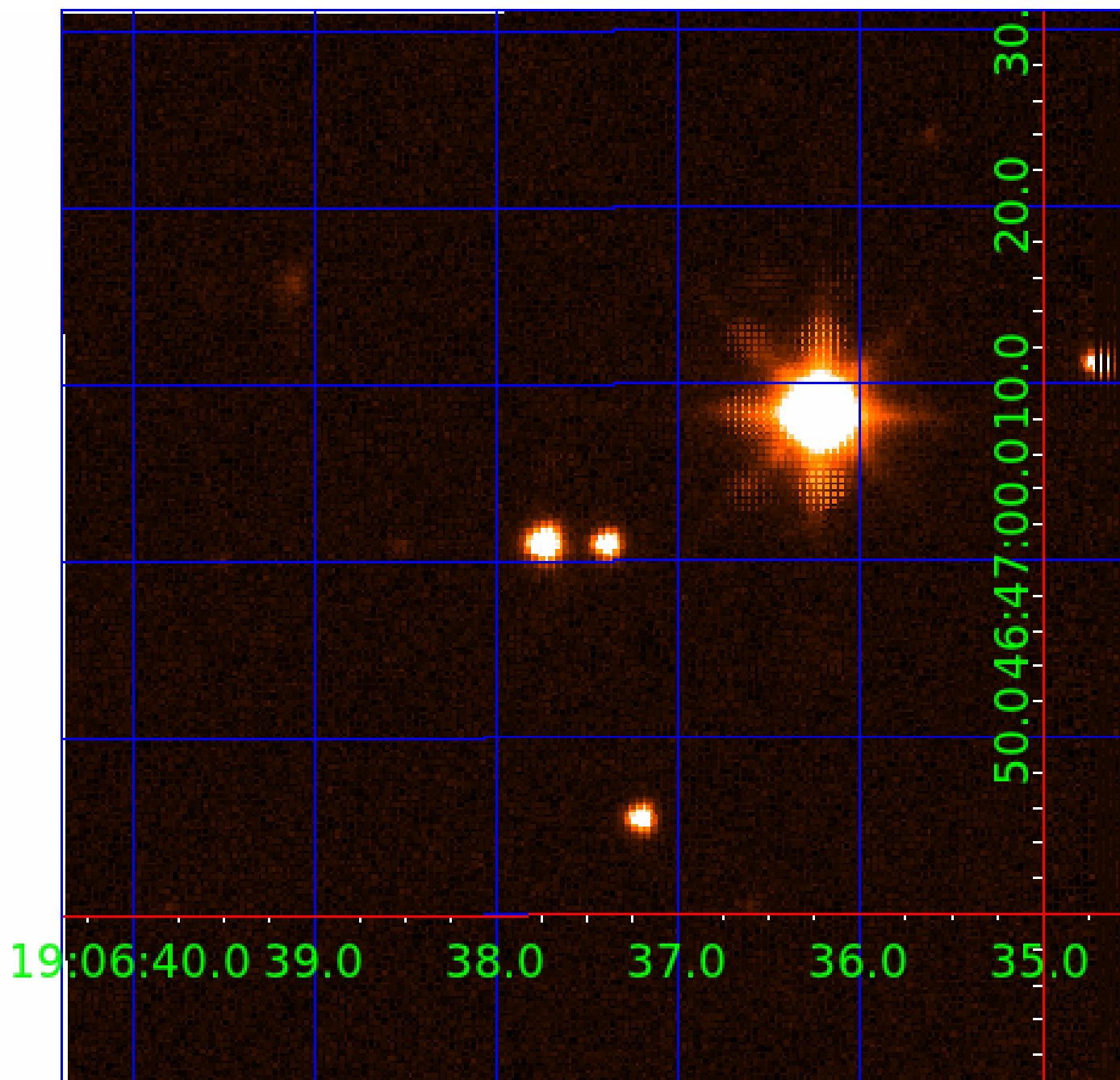


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009880467

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
009880467-01	OBS	0326.01	8.973474	135.138045	921.7	3.154	39.9	42.7	11.54	4751	37.69	6196.18
009880467-02	OBS	0326.02	108.545176	151.147010	836.4	10.012	11.7	12.9	11.54	4751	45.53	223.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009880467-01	OBS	PC	0.01	0	0	0	0	CENT_KIC_POS
009880467-02	OBS	PC	0.91	0	0	0	0	CENT_KIC_POS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

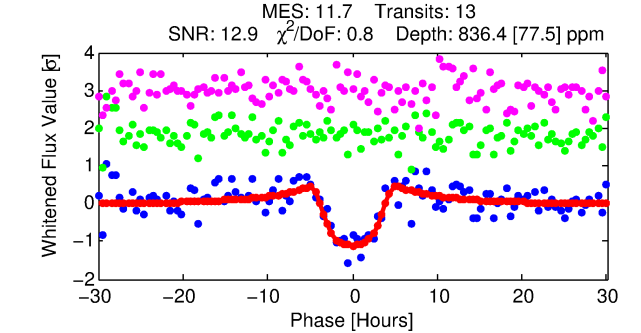
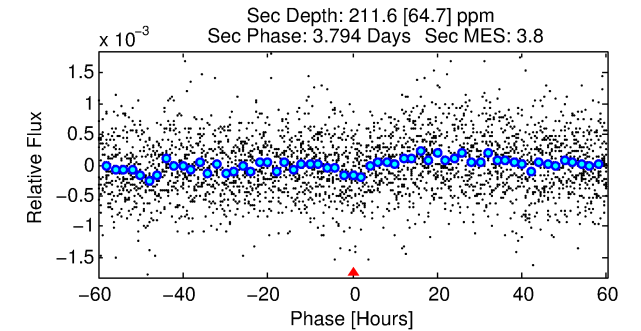
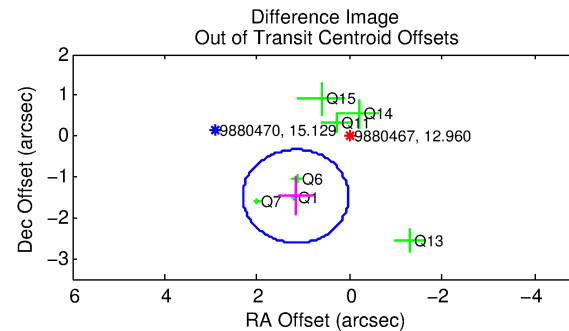
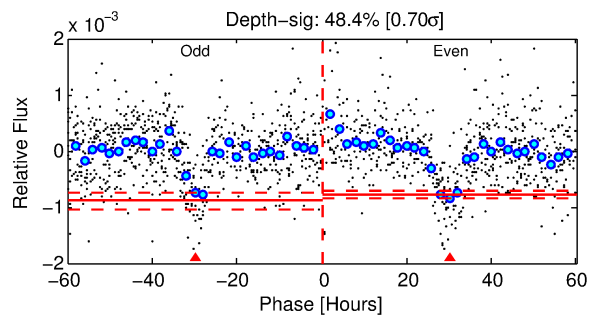
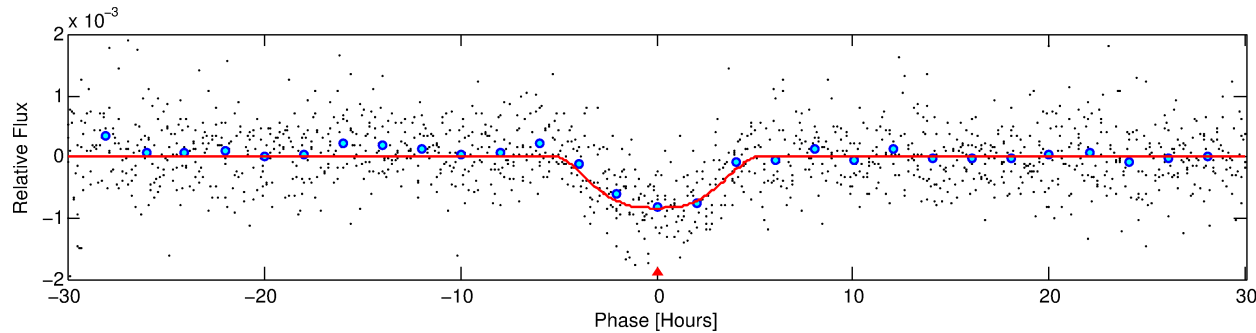
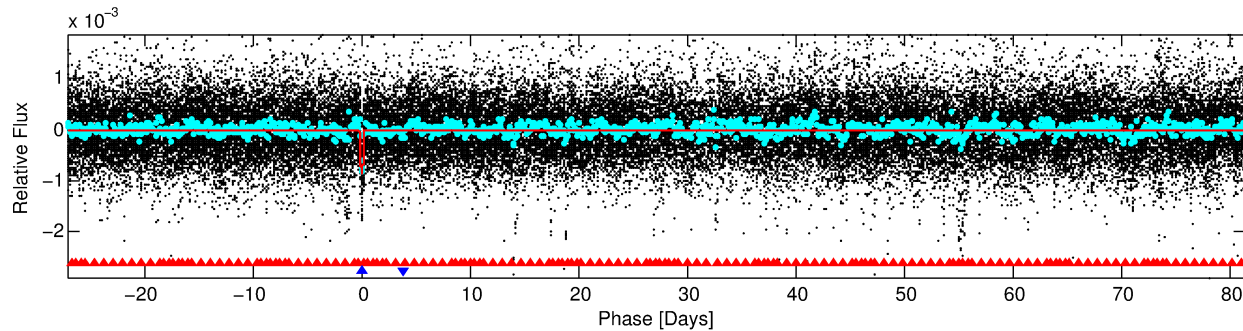
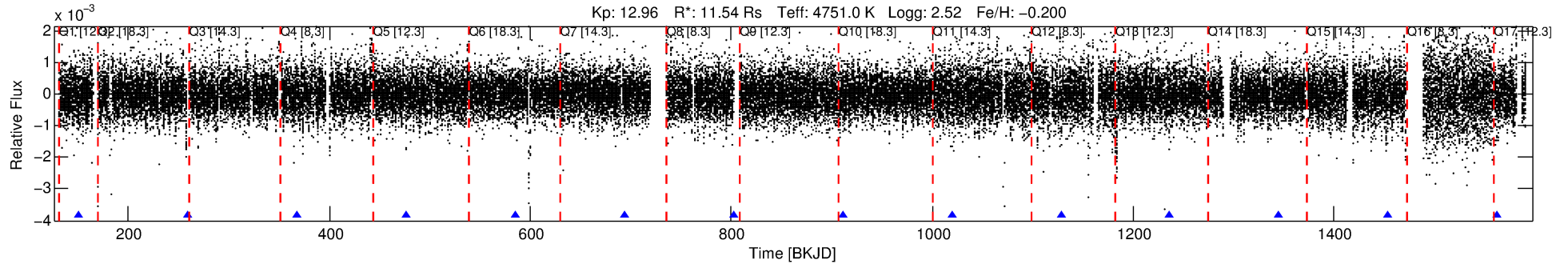
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009880467-02

No Significant Match Found

DV One-Page Summary

KIC: 9880467 Candidate: 2 of 2 Period: 108.545 d
KOI: K00326.02 Corr: 0.836



DV Fit Results:

Period = 108.54518 [0.00187] d
Epoch = 151.1470 [0.0147] BKJD
Rp/R* = 0.0362 [0.0025]
a/R* = 32.33 [3.49]
b = 0.96 [0.01]
Seff = 223.15 [64.34]
Teq = 986 [71] K
Rp = 45.53 [11.53] Re
a = 0.5218 [0.1034] AU
Ag = 15.29 [6.67] [2.14 σ]
Teffp = 3013 [258] K [7.57 σ]

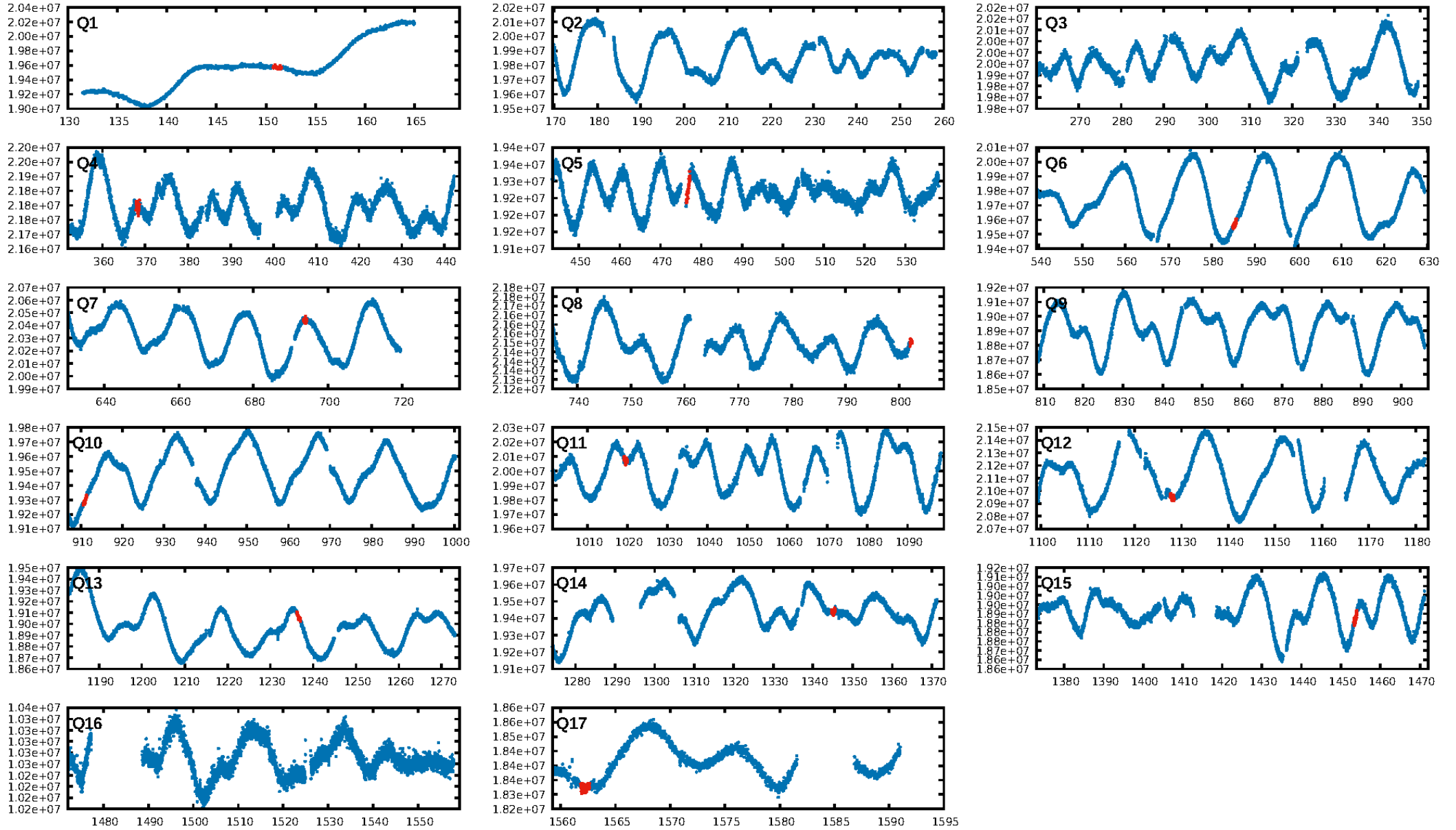
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [227.66 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 96.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.90e-25
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: -10.65
Centroid-sig: 0.8%
Centroid-so: 1.310 arcsec [0.86 σ]
OotOffset-rm: 1.884 arcsec [4.94 σ]
KicOffset-rm: 12.211 arcsec [3.93 σ]
OotOffset-st: 2/3/0/2 [7]
KicOffset-st: 2/3/0/2 [7]
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DiffImageOverlap-fno: 0.70 [7/10]

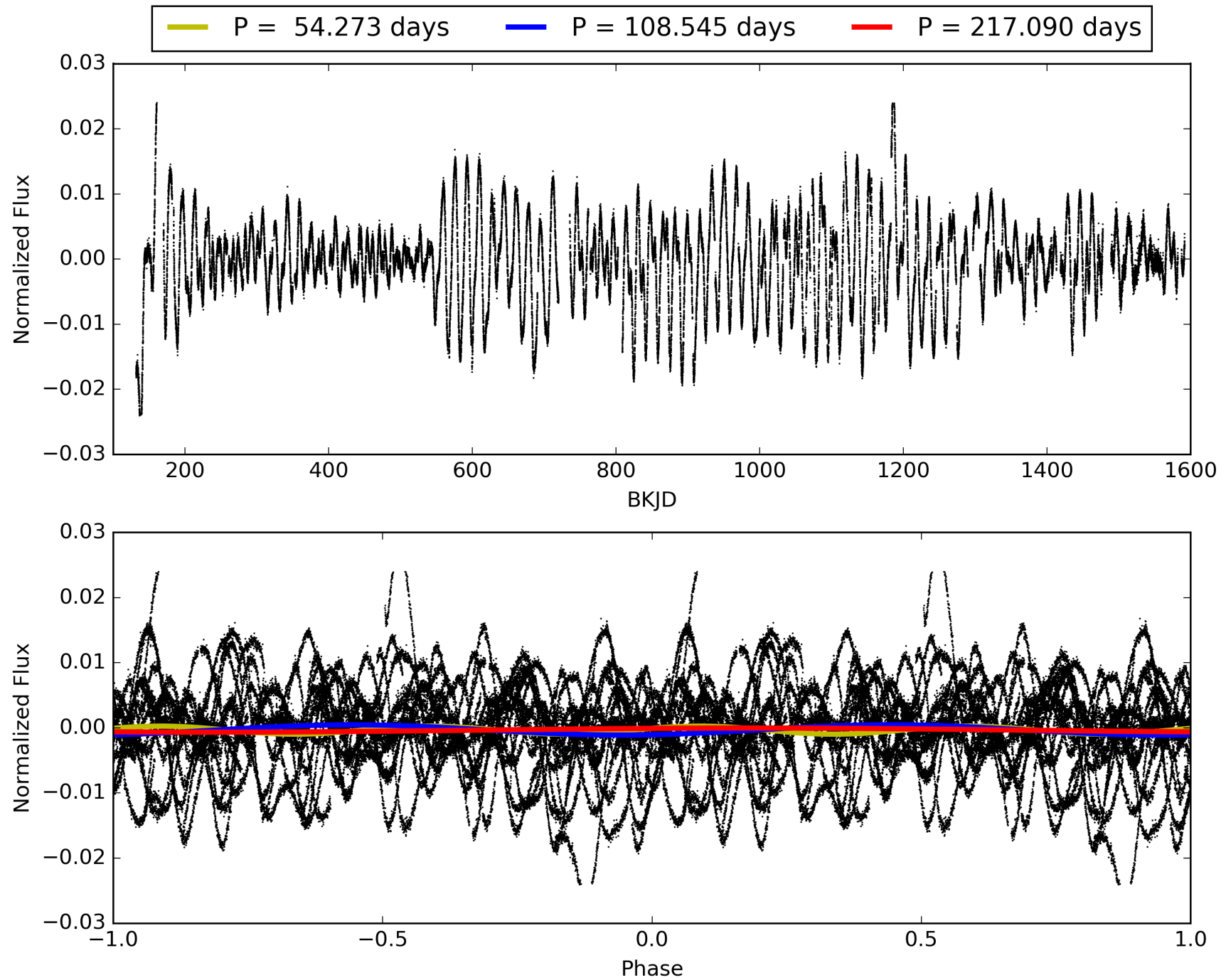
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:54:52 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009880467-02, PDC Light Curves

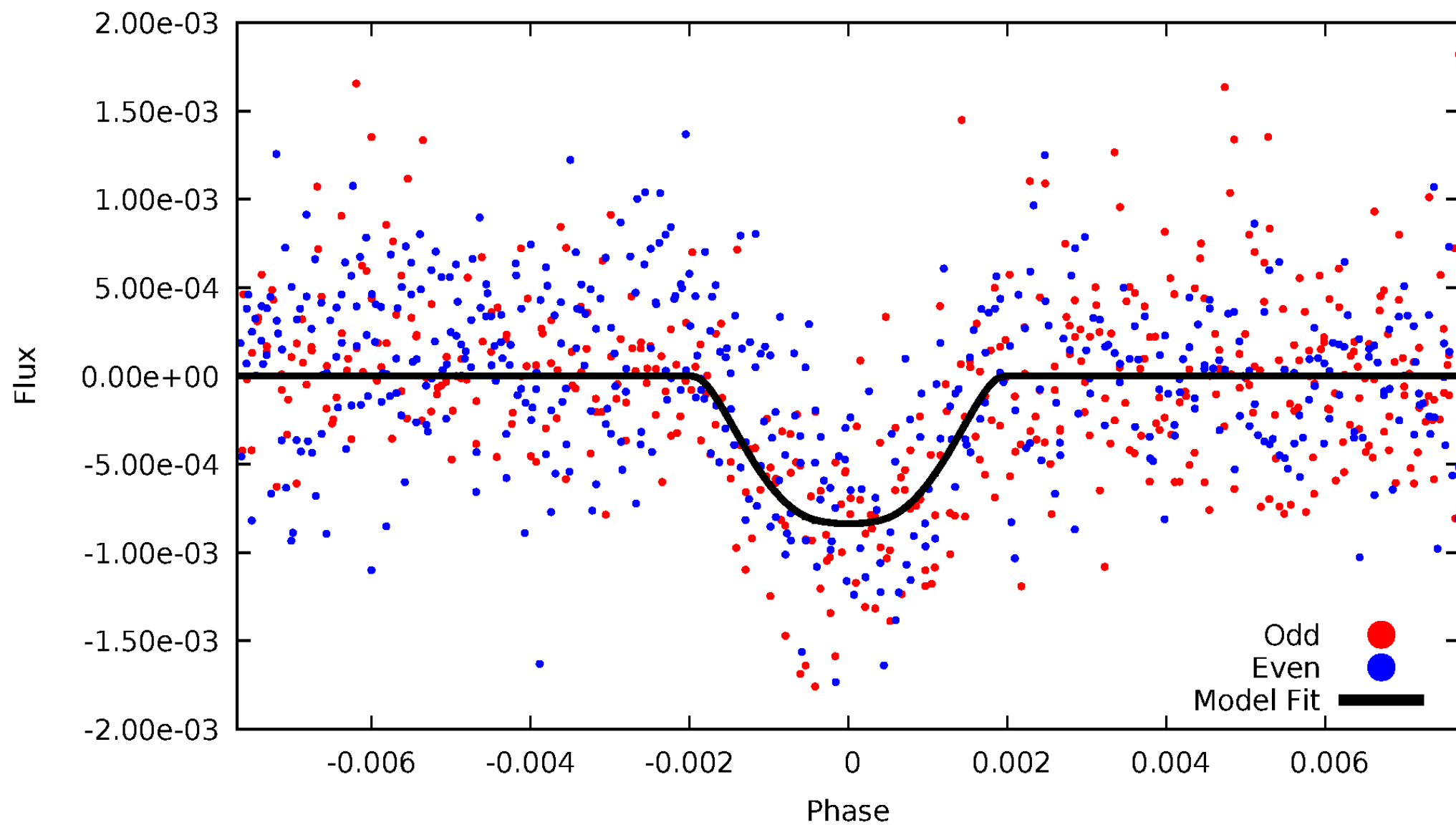


TCE 009880467-02



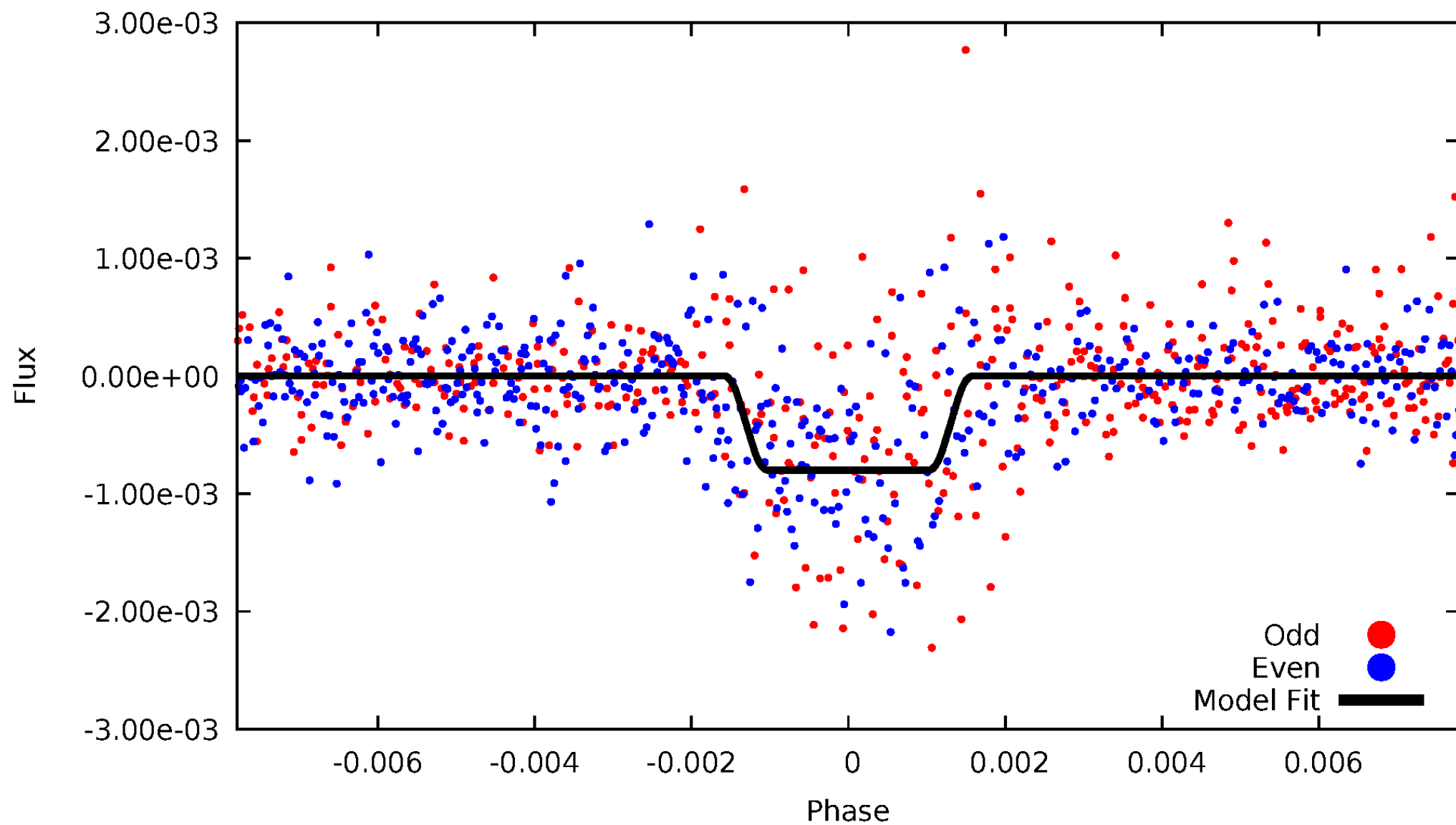
DV Odd/Even

TCE 009880467-02



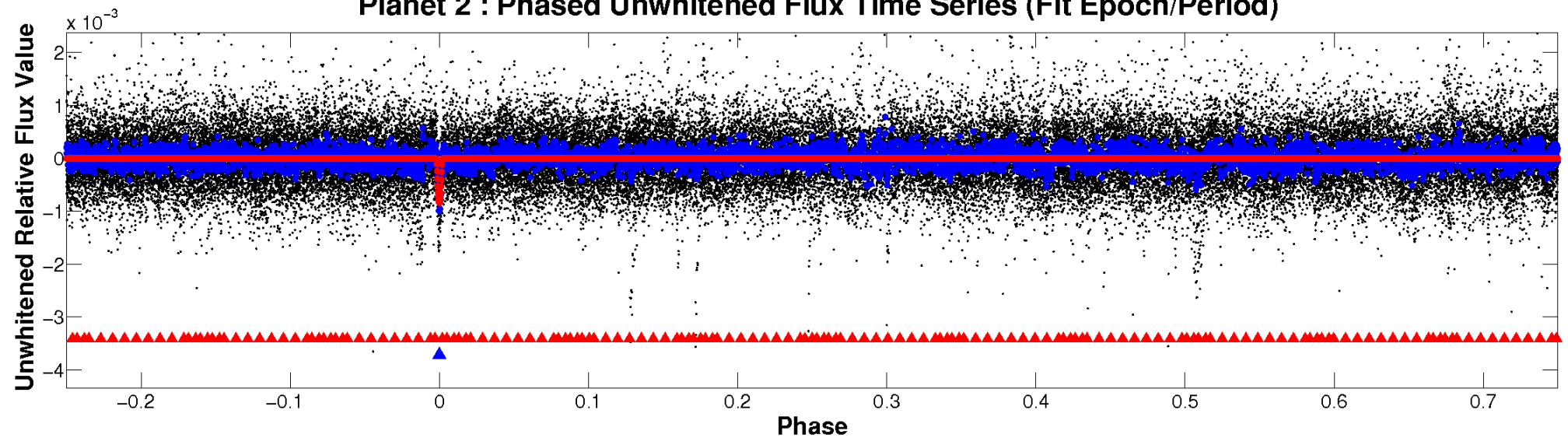
ALT Odd/Even

TCE 009880467-02

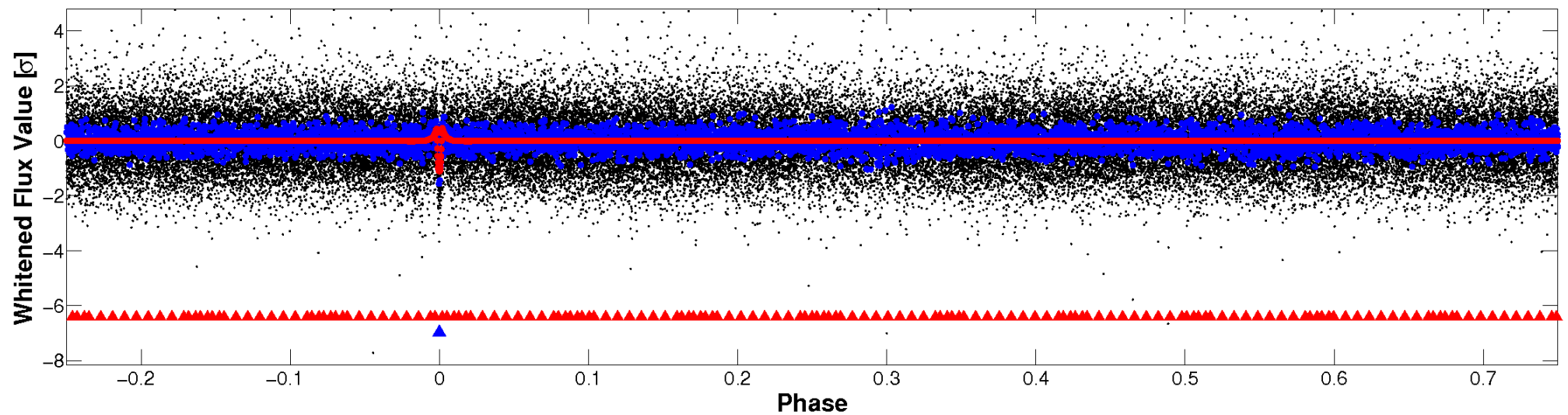


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

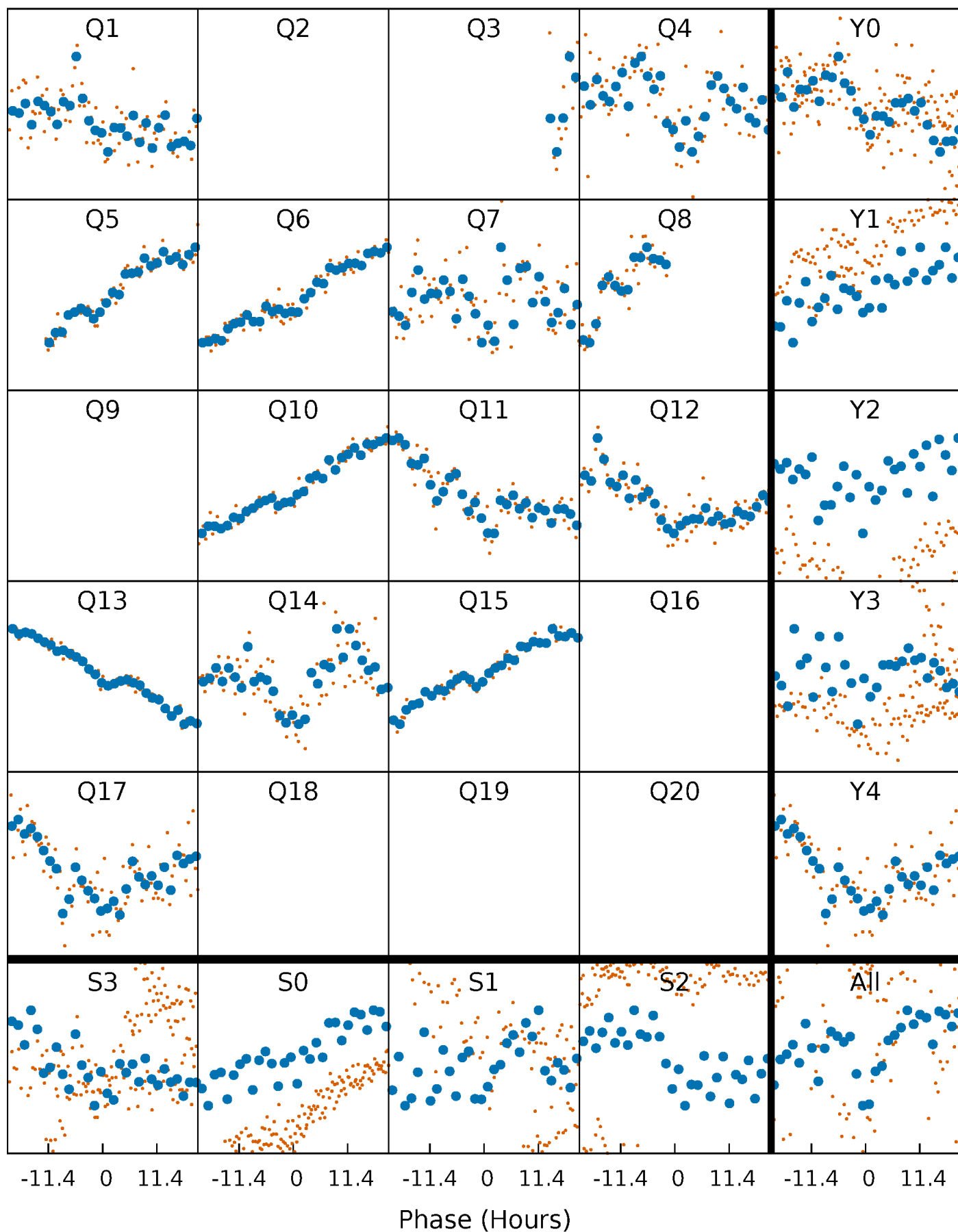


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



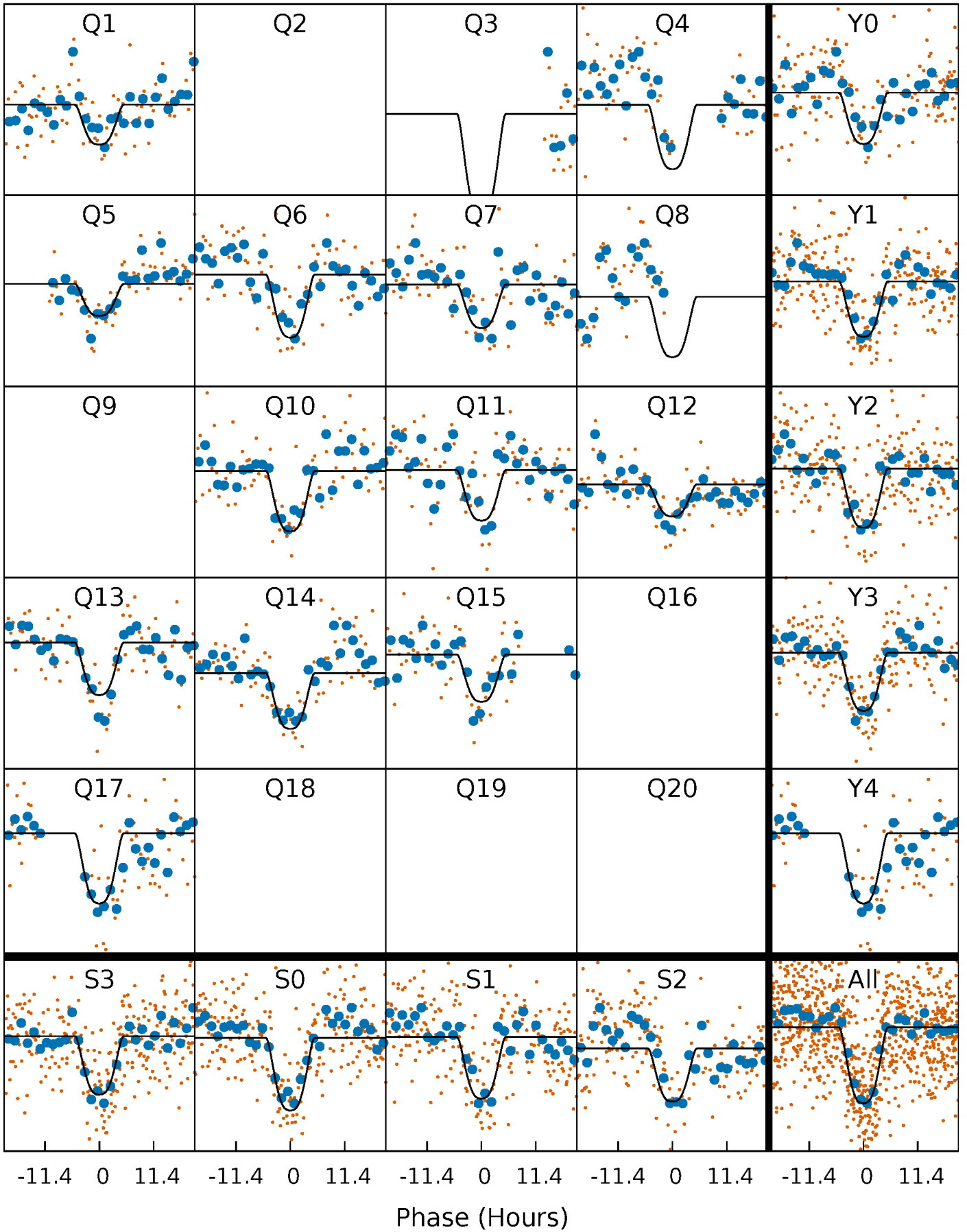
PDC Quarter-Phased Transit Curves

TCE 009880467-02 P=108.545176 Days $T_0=151.147010$ (BKJD)



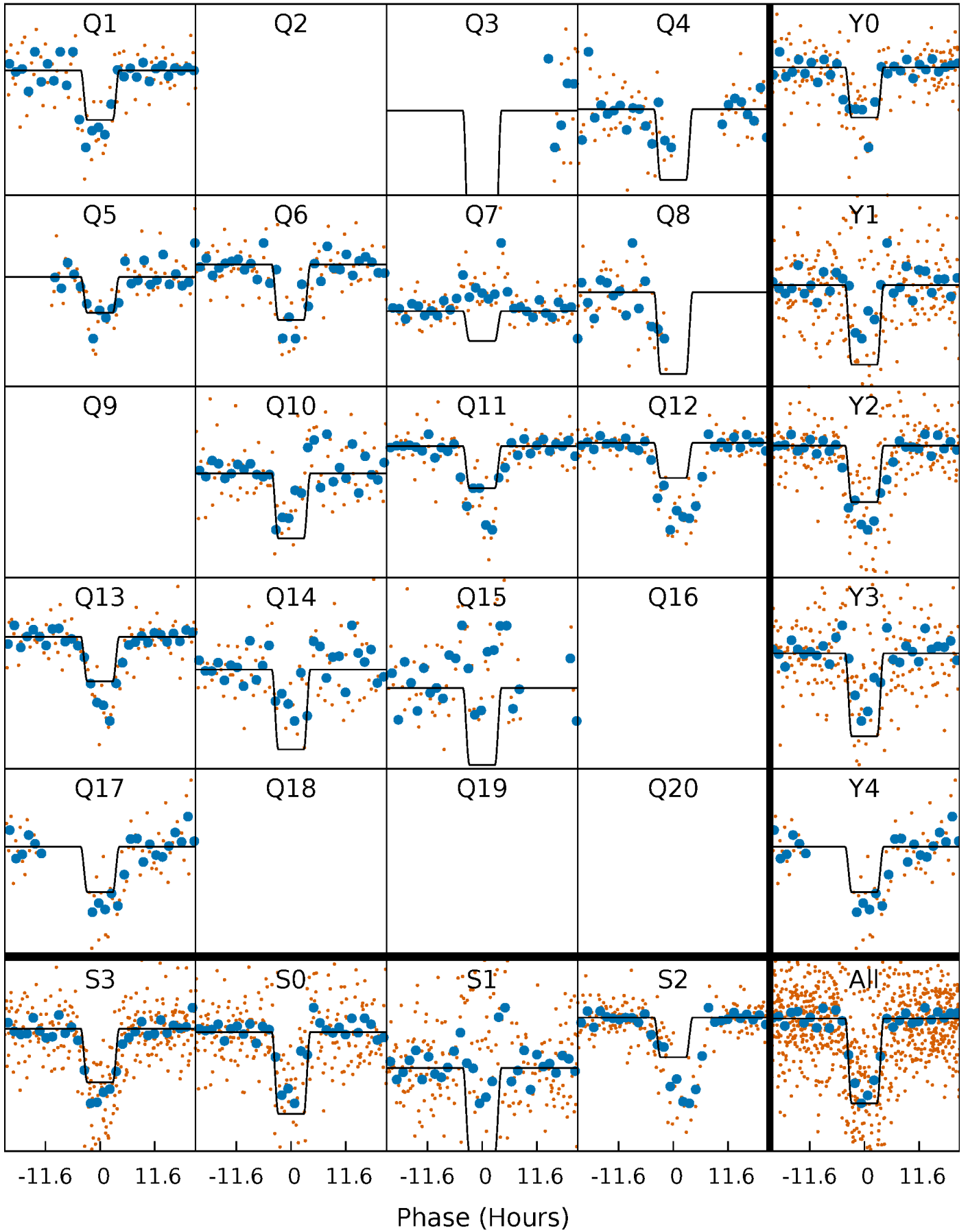
DV Quarter-Phased Transit Curves

TCE 009880467-02 P=108.545176 Days $T_0=151.147010$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

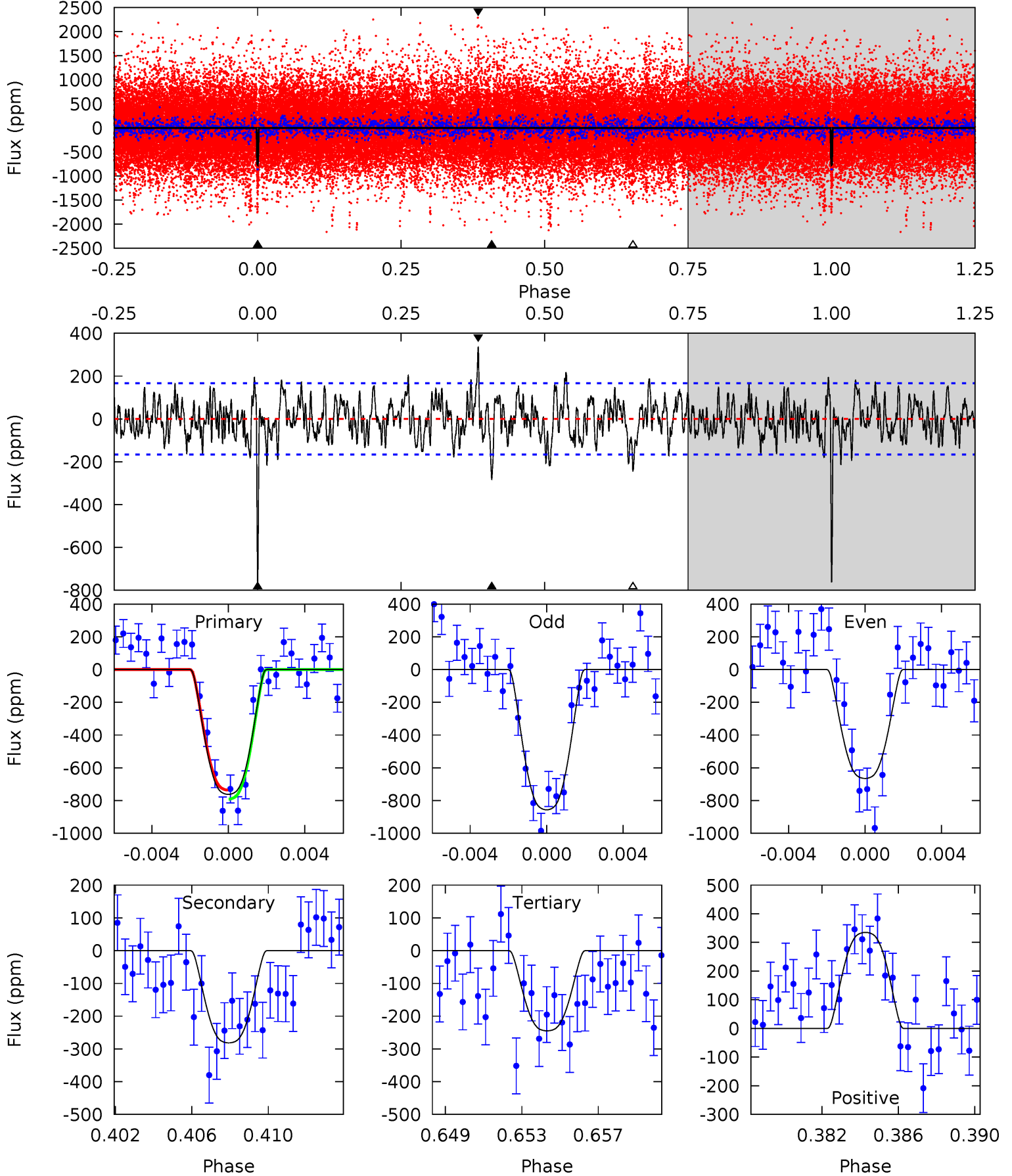
TCE 009880467-02 P=108.544485 Days $T_0=151.142609$ (BKJD)



DV Model-Shift Uniqueness Test

009880467-02, P = 108.545176 Days, E = 42.601834 Days

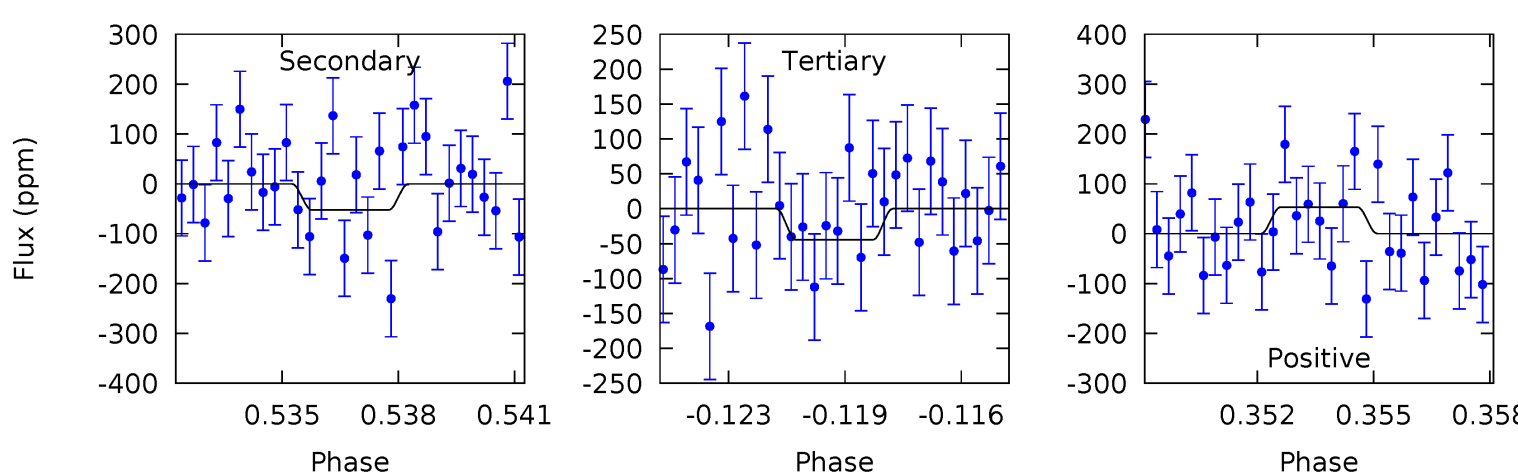
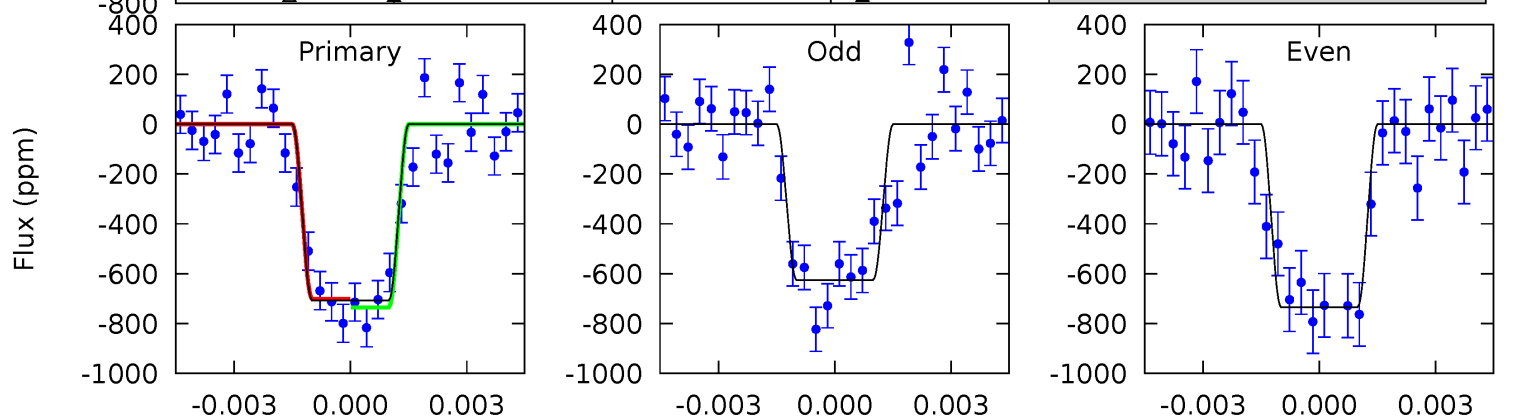
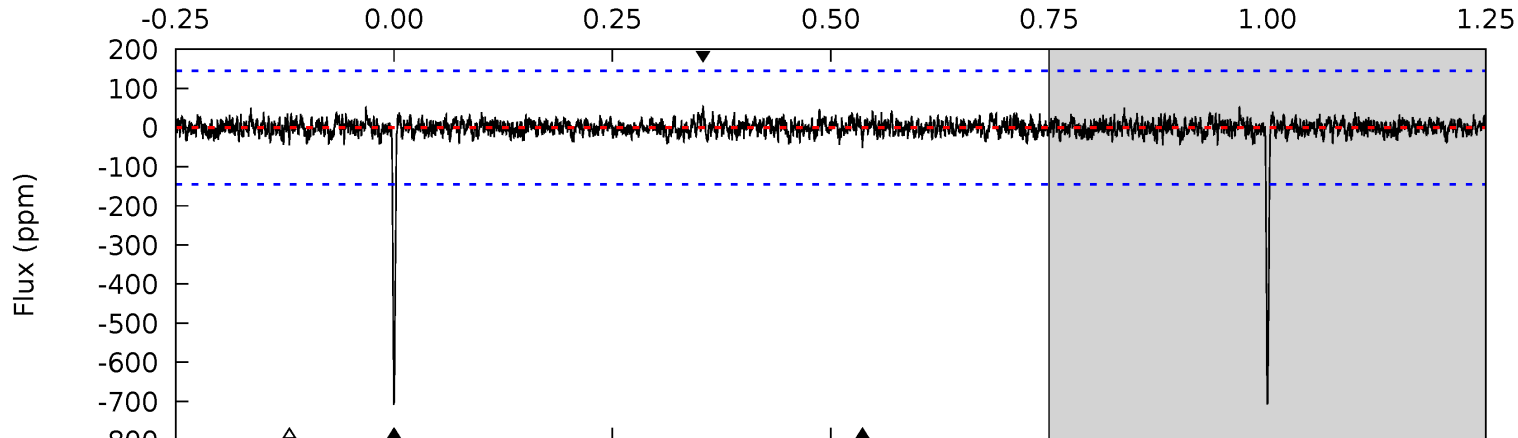
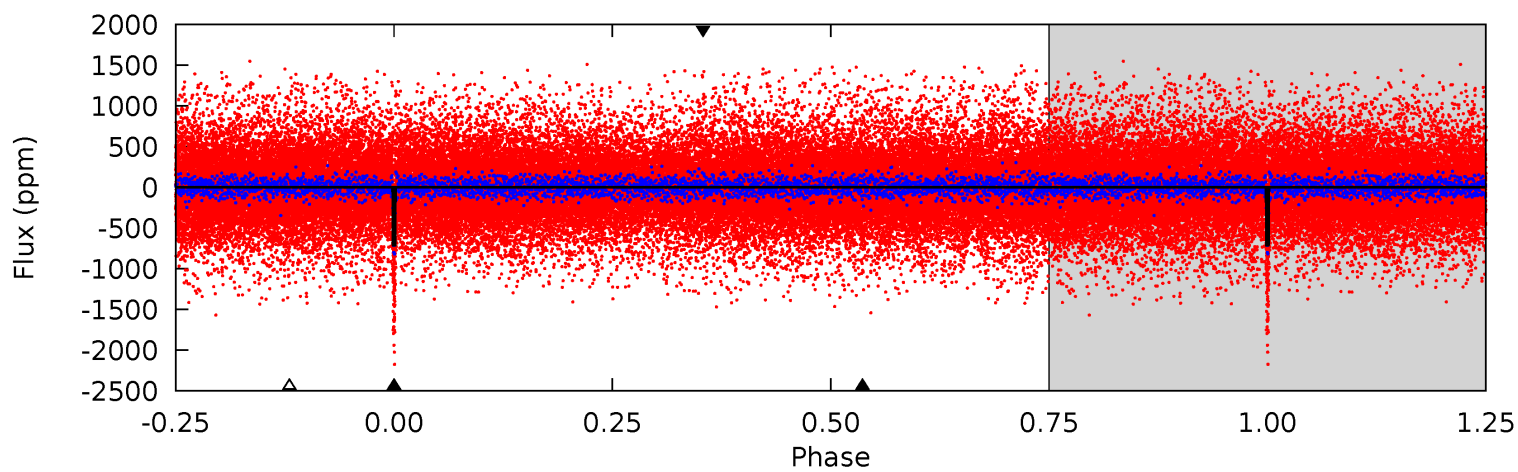
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.8	8.80	7.65	10.5	5.20	2.88	2.46	16.2	13.4	1.15	-1.67	3.01	0.93	0.31	0.86



Alt Model-Shift Uniqueness Test

009880467-02, P = 108.544485 Days, E = 42.598124 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.6	1.90	1.61	1.93	5.24	2.95	0.53	24.0	23.7	0.29	-0.03	1.97	0.84	0.07	0.62



Stellar Parameters For KIC 009880467

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4751^{+64}_{-85}	$2.520^{+0.148}_{-0.121}$	$-0.200^{+0.150}_{-0.150}$	$11.536^{+1.874}_{-2.811}$	$1.606^{+0.170}_{-0.510}$	$0.001^{+0.001}_{-0.000}$
	+1%/-2%	+6%/-5%	+75%/-75%	+16%/-24%	+11%/-32%	+79%/-32%
Source	SPE18	SPE18	SPE18	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009880467-02 / KOI 0326.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-282 ± 32	$45.77^{+5.48}_{-6.98}$	1373^{+73}_{-75}	3576^{+119}_{-110}	20^{+6}_{-5}
Alt.	-53 ± 28	$35.29^{+5.17}_{-5.49}$	1375^{+66}_{-79}	2963^{+242}_{-318}	$5.866^{+4.857}_{-3.152}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

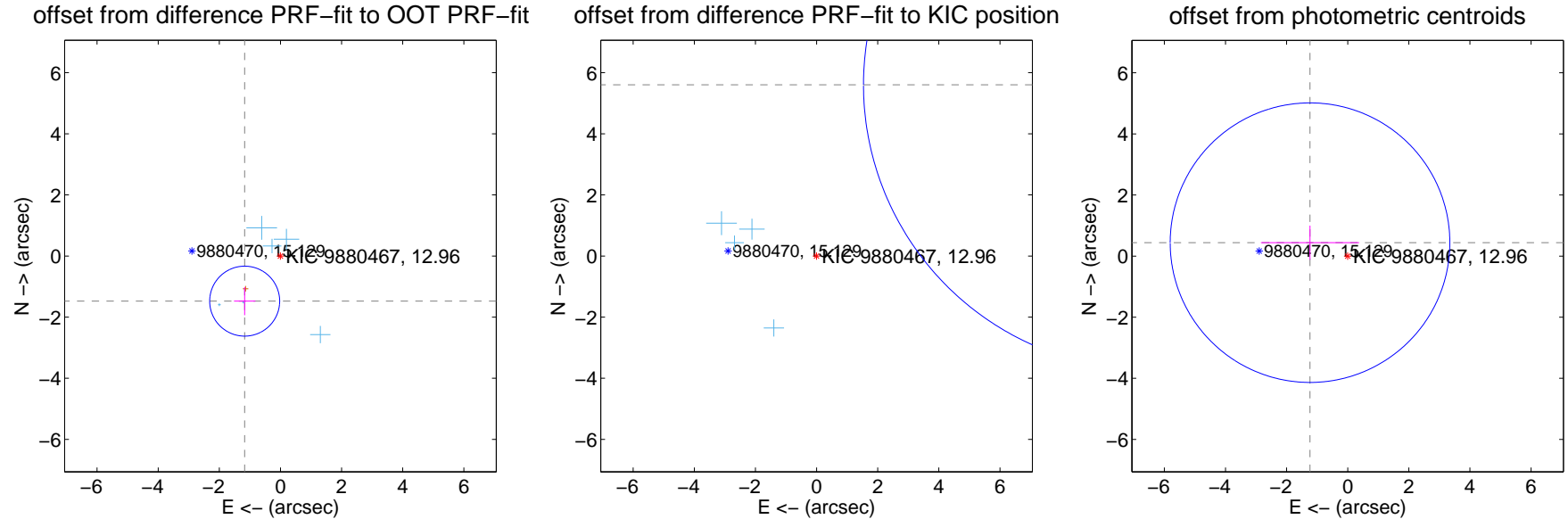
DV Centroid Data

Supplemental centroid analysis for 009880467-02. Kepler magnitude: 12.96. Transit SNR 12.89

There are 6 quarters with good PRF difference image offsets

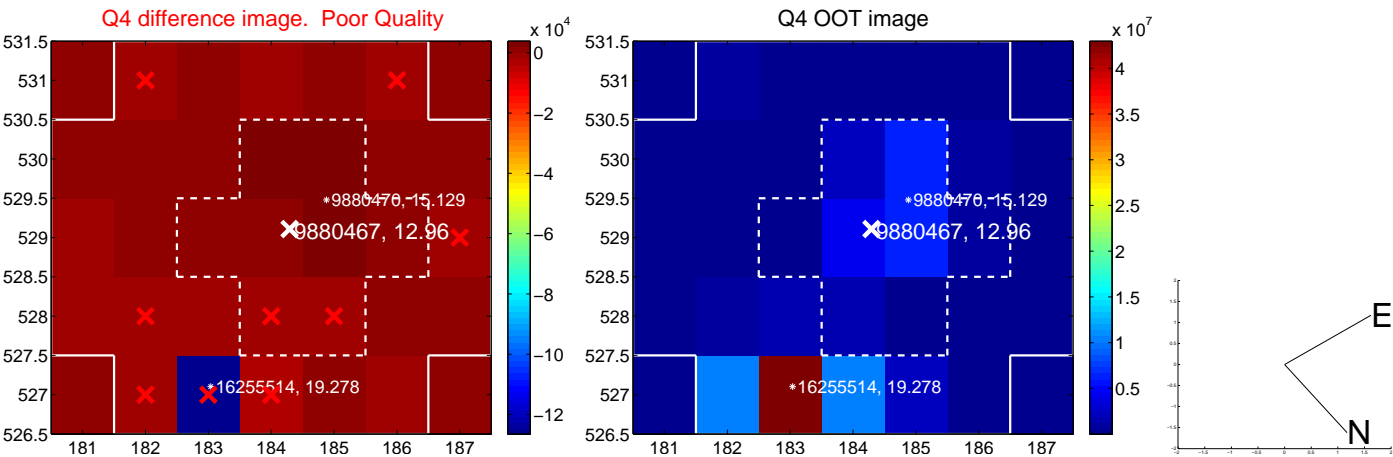
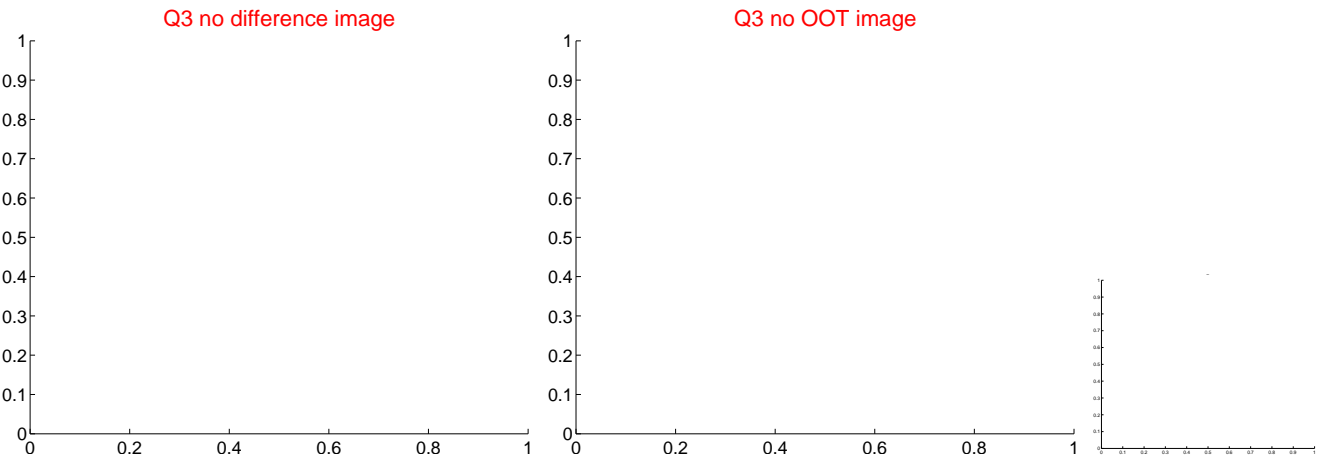
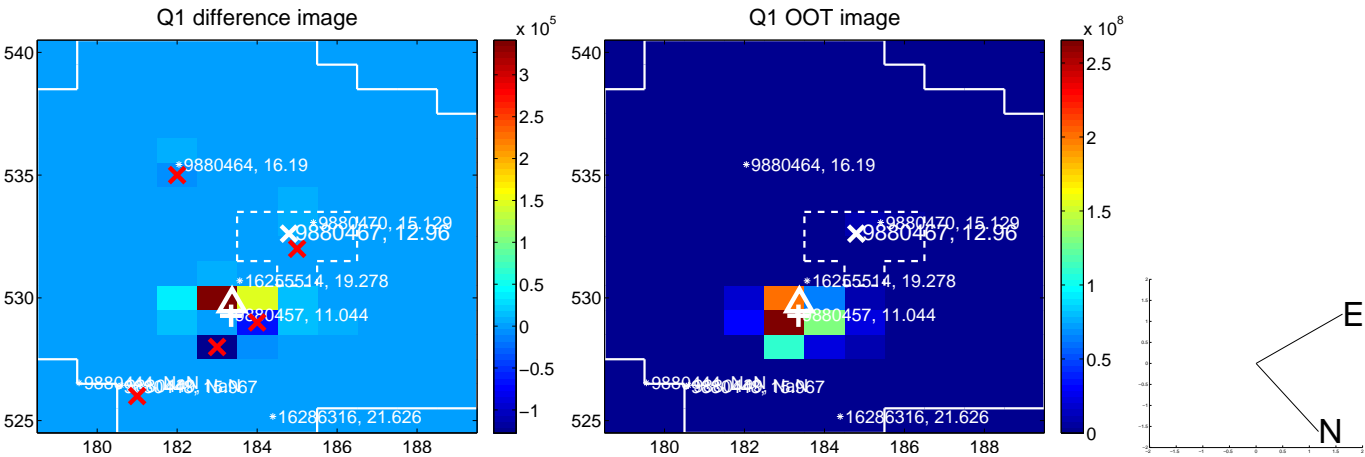
The OOT PRF centroid is offset from the target star catalog position by about 2.50 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.884 ± 0.382	4.94	1.171 ± 0.349	-1.477 ± 0.460
PRF-fit source offset from KIC position	12.211 ± 3.105	3.93	-10.849 ± 2.848	5.604 ± 1.348
photometric centroid source offset	1.31 ± 1.53	0.86	1.23 ± 1.61	0.44 ± 0.56

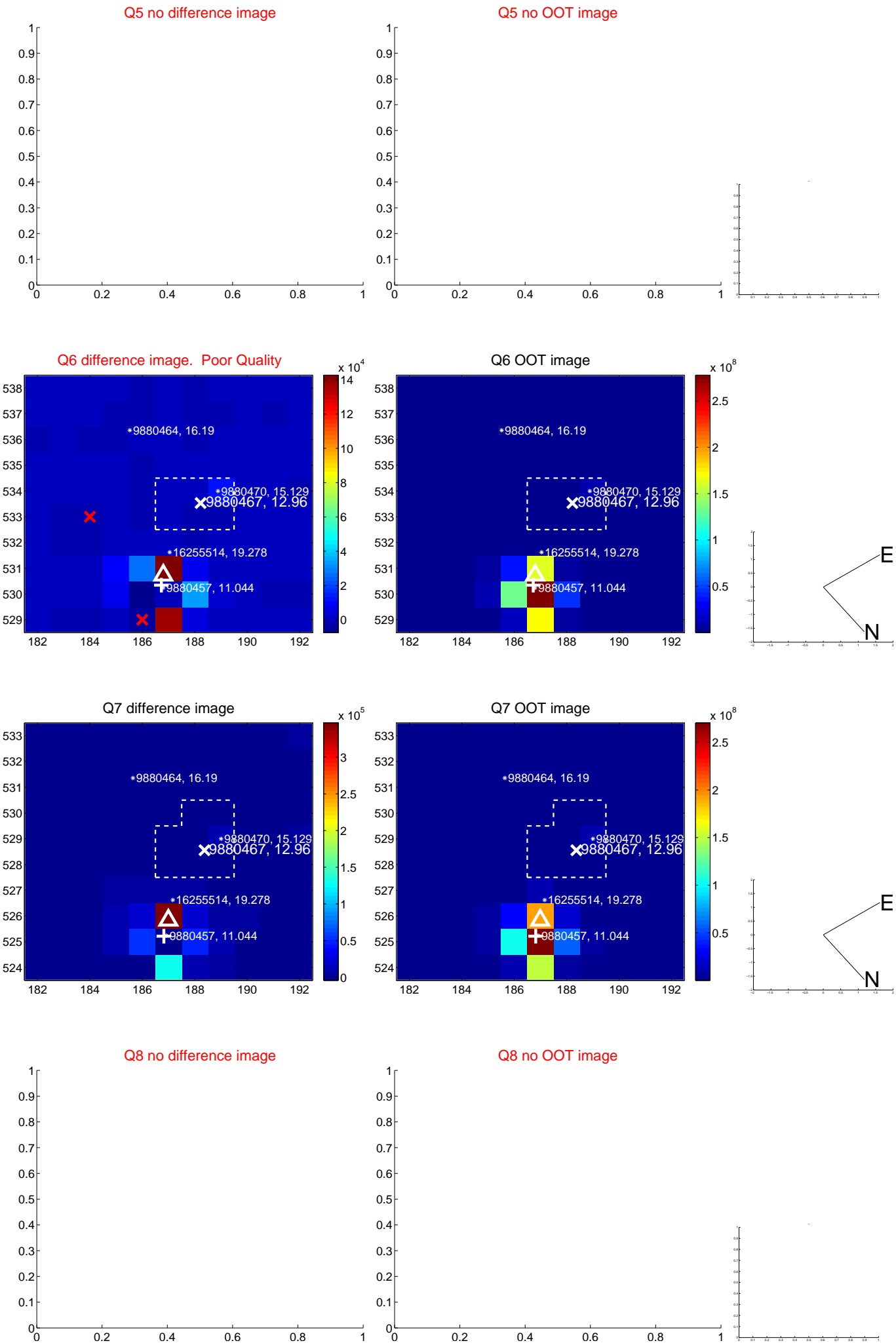


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

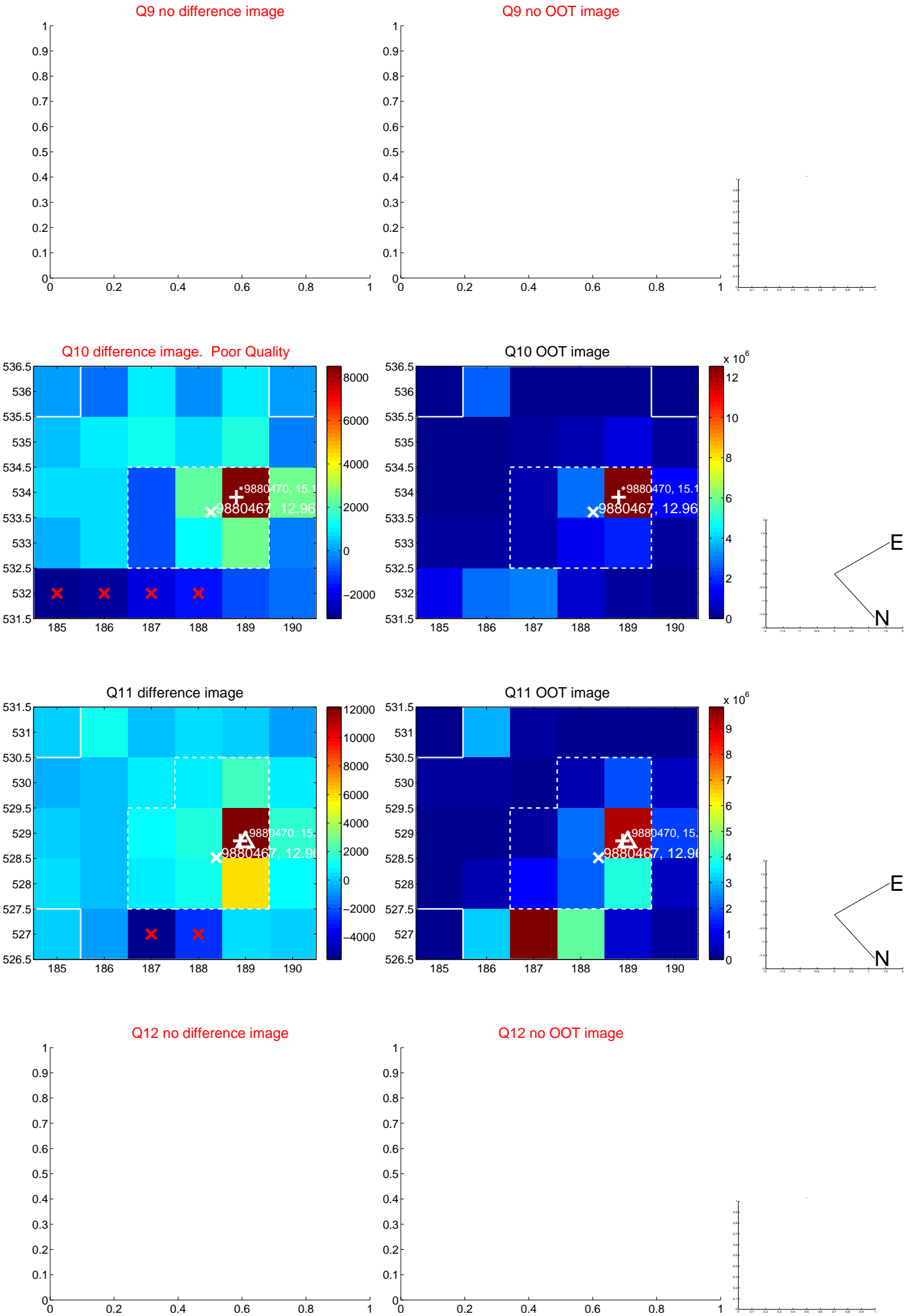
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



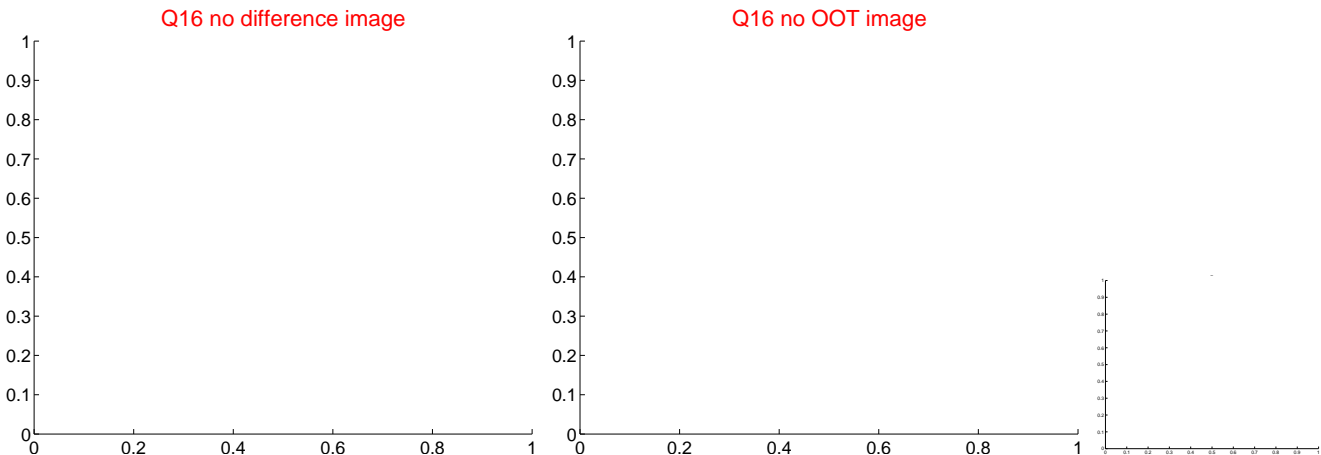
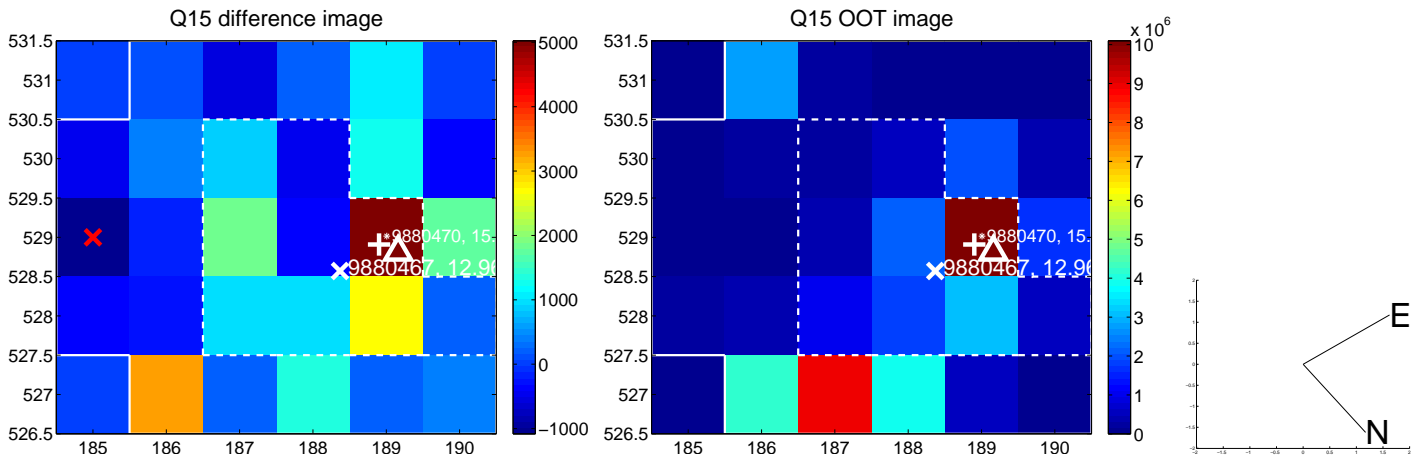
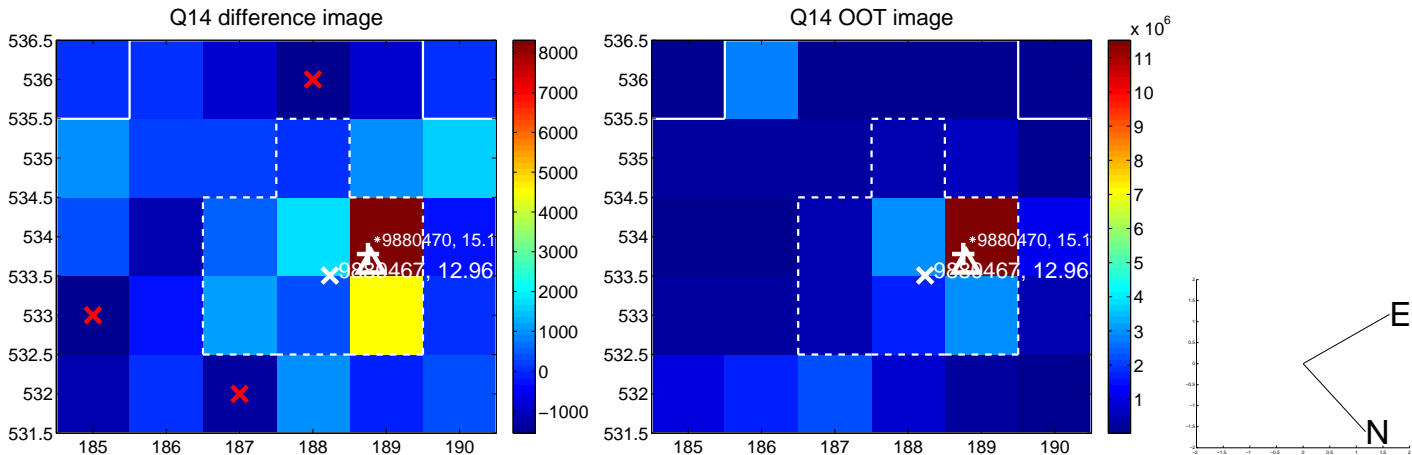
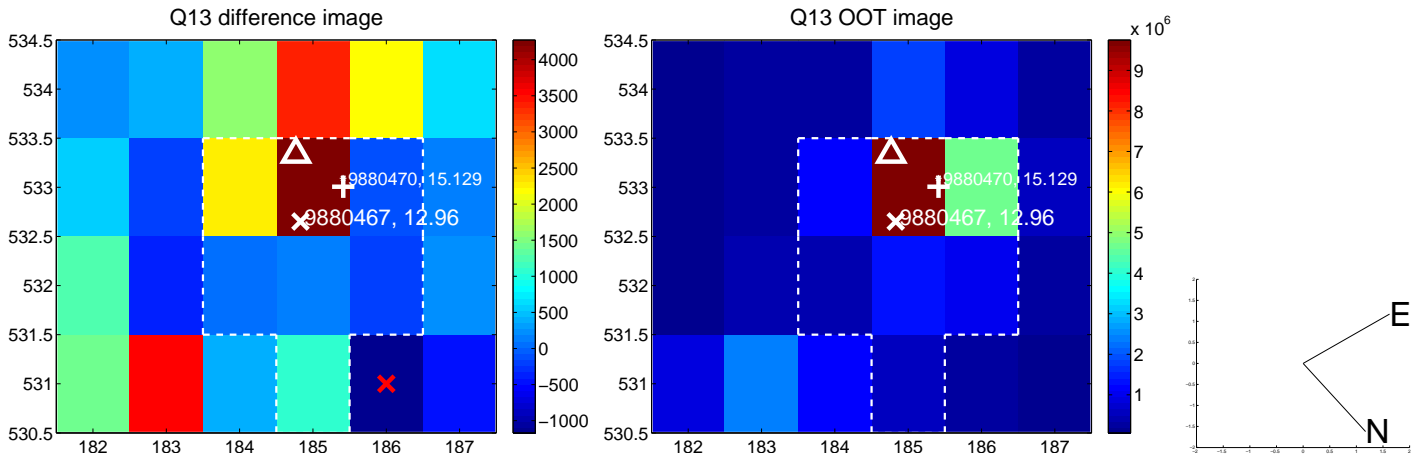
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



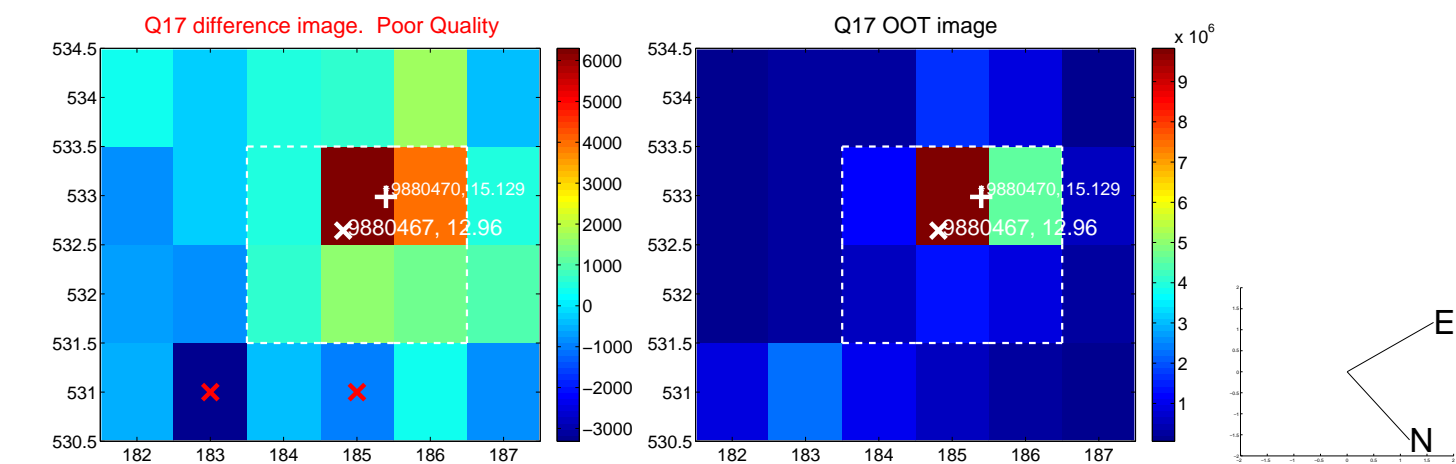
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



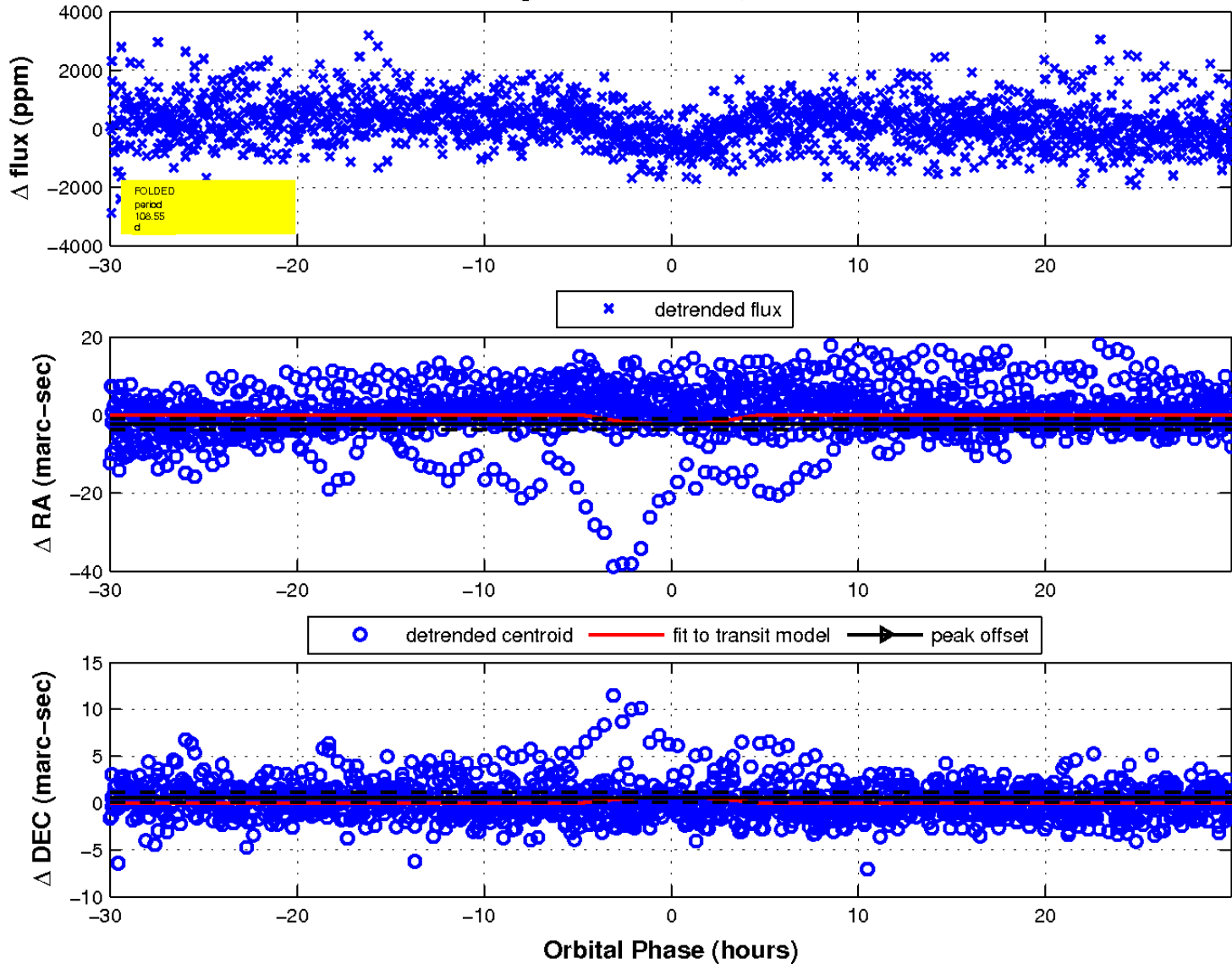
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

